DOCUMENT RESUME

ED 241 297 SE 043 988

AUTHOR	Gustafson, John A., Ed.; And Others
TITLE	The First National Congress for Environmental Education Futures: Policies and Practices. Conference Proceedings - Policies Track (Burlington, Vermont, August 12-17, 1983).
INSTITUTION	Ohio State Univ., Columbus, Ohio. Information Reference Center for Science, Mathematics, and Environmental Education.
PUB DATE	Dec 83
NOTE	182p.
AVAILABLE FROM	Available from SMEAC Information Reference Center, The Ohio State Univ., 1200 Chambers Rd., 3rd Floor, Columbus, OH 43212 ($5.85).
PUB TYPE	Collected Works - Conference Proceedings (021) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC08 Plus Postage.
DESCRIPTORS	Conservation Education; *Educational Trends; Elementary Secondary Education; *Environmental Education; Federal Programs; *Futures (of Society); Government Role; Higher Education; *Information Networks; Long Range Planning; Nonformal Education; *Policy Formation; *Program Content; School Business Relationship; Teacher Education
IDENTIFIERS	*Environmental Education Literacy

ABSTRACT

These conference proceedings on policies and practices for environmental futures are organized in four main sections: plenary sessions; interest-group sessions; resolutions; and recommendations. Among the topic areas addressed during plenary sessions are environmental education (EE) for the 1980s, a television correspondent's perspective of the environment, environmental and educational quality, and conservation education. Interest group presentations focus on topics and issues related to citizen organizations, elementary and secondary education, higher education (including the structure, status, and future of EE at The Ohio State University and a description of the Behavior and Environment Program at the University of Michigan), governmental organizations, industry and business, and youth organizations. The 17 resolutions introduced, debated, and passed are presented along with 36 recommendations focusing on: (1) the formation of a national center and regional demonstration centers for environmental education; (2) environmental literacy, i.e., targeting audiences and programs in reference to changes occurring in the EE community; (3) suggestions for strengthening both institutional and communications arrangements; and (4) information dissemination and electronics interactions to support EE organizations and programs. (BC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED241297

The First National Congress for Environmental Education Futures: Policies and Practices

Conference Proceedings -- Policies Track

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Editorial Panel

John A. Gustafson, Chairman

Alexander J. Barton
Dean B. Bennett
Carolyn B. Kennedy
David A. Kennedy
John J. Padalino
Linda B. Oxendine
John R. Paulk
Dixie A. Pemberton
Charles E. Roth
Alan R. Sandler
Judith M. Schultz
Talbert B. Spence

Congress Sponsors: American Nature Study Society
Conservation Education Association

Congress Coordinator: Alliance for Environmental Education

An Environmental Education Information Report

Published By

SMEAC Information Reference Center
The Ohio State University
College of Education and
School of Natural Resources
1200 Chambers Road, 3rd Floor
Columbus, Ohio 43212

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Robert W. Howe

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

December, 1983

SE 043 988

Environmental Education Information Reports

Environmental Education Information Reports are issued to analyze and summarize information related to the teaching and learning of environmental education. It is hoped that these reports will provide information for personnel involved in development, ideas for teachers, and indications of trends and recommendations to further environmental education.

Your comments and suggestions for this series are invited.

John F. Disinger
Associate Director
Environmental Education

This publication was sponsored by the SMEAC Information Reference Center of The Ohio State University. It was developed from materials prepared by participants in The First National Congress for Environmental Education Futures, and reviewed by members of The Coalition for Addressing the First EE Congress. Points of view or opinions expressed do not necessarily represent the official views or opinions of The Coalition, of the Alliance for Environmental Education or its member organizations, of conference sponsors or co-sponsors, or of the SMEAC Information Reference Center.

Congress Steering Committee

John J. Padalino, Congress Coordinator
Director, Pocono Environmental Education Center
Dingmans Ferry, Pennsylvania

John R. Paulk, Program Chairman
Director, Division of Land and Forest Resources
Tennessee Valley Authority
Norris, Tennessee

Kathleen Blanchard, Publicity Chairman
Assistant Director, Atlantic Center for the Environment
Ipswich, Massachusetts

Malcolm P. Crooks, Fiscal Chairman
National Association of Conservation Districts
Solebury, Pennsylvania

John A. Gustafson, Proceedings Chairman
Treasurer, American Nature Study Society
Homer, New York

Thomas R. Hudspeth, Arrangements Chairman
Assistant Director, The Bittersweet Environmental Program
The University of Vermont
Burlington, Vermont

Elwyn F. Peffer, Registration Chairman
U. S. Department of Agriculture Forest Service
Atlanta, Georgia

Dixie Ann Pemberton, Evaluation Chairman
National Council for Geographic Education
University Park, Maryland

Talbert B. Spence, Practices Track Coordinator
Wave Hill Center for Environmental Studies
Bronx, New York

Special Thanks to:

American Gas Association
American Institute of Architects
Edison Electric Institute
Tennessee Valley Authority
The Johnson Foundation
The University of Vermont
United States Environmental Protection Agency

Note

This was a two-track Conference, with sessions for the Policies Track running concurrently with those for the Practices Track. This document contains the Plenary Sessions and Policies Track proceedings. Practices Track presentations are being published separately in NATURE STUDY, the Journal of the American Nature Study Society, Spring, 1984, which will be sent to all members of ANSS. Others may purchase copies by sending $5.00 to: John A. Gustafson, R.D. 1, Box 195, Homer, NY 13077.

Co-sponsors of the Congress

American Forest Institute
American Society for Environmental Education
Atlantic Center for the Environment
The Council on Outdoor Education
Edison Electric Institute
Environmental Education Advisory Council, New York City
Human Habitat Study
Kentucky Association for Environmental Education
National Association for Environmental Education
National Association of Conservation Districts
National Council for Geographic Education
National Science Teachers Association
New York State Outdoor Education Assocation
New England Environmental Education Alliance
Pennsylvania Alliance for Environmental Education
Soil Conservation Society of America
State Environmental Education Coordinators Association
Tennessee Environmental Education Association
Vermont State-Wide Environmental Education Project

Editorial Note: These Congress Proceedings are organized in chronological fashion, in four main sections: plenary sessions, interest-group sessions, resolutions sessions, and recommendations. The plenary and interest-group sessions were conducted alternately on each of the first four days of the Congress; the resolution session, and the general session for presentation of recommendations, were held on day five.

The sponsoring and co-sponsoring organizations of the Congress, and those represented by the coordinating body, the Alliance for Environmental Education, share a common interest in environmental education, yet are diverse in their individual goals and objectives. In recognition of this common interest, and of their diversity, the organizations shared the responsibilities for the Congress in varying degrees, and accepted the diversity, individuality, and unity expressed by participants in the Congress without necessarily agreeing with the outcomes as stated in these Proceedings.

Contents

Page

FOREWORD vii

CHARGE TO THE CONGRESS, By John J. Padalino. 1

OVERVIEW & KEYNOTE - CHANGING STRATEGIES FOR CHANGING TIMES: A CALL TO ACTION, by John R. Paulk. 2

PLENARY MEETING PRESENTATIONS

Remarks on Assuming the Presidency of the American Nature Study Society, by John J. Kirk. 6

Environmental Education for the Eighties, by Noel Brown 9

From Awareness to Action: The Next Step, by M. Rupert Cutler 20

Re-grounding in Nature: A Contemporary Perspective of the Evolution of Natural Consciousness, by Bob Samples. 30

The Environment Today - The Correspondent's Perspective, by Bettina Gregory. 33

Environmental and Educational Quality: A Time for Action, by S. David Freeman 38

Conservation Education - Alive and Growing, by Peter C. Myers 43

INTEREST GROUP PRESENTATIONS

CITIZEN ORGANIZATIONS:

Citizen Interest Group Participation, by Judith M. Schultz. 48
The Christian Church and Environmental Education Futures, by Charles H. Yaple 49

ELEMENTARY/SECONDARY EDUCATION:

Missouri Design for the Future: Comprehensive Environmental/Conservation Education Program, by Donald K. Heard. 55
"The Past is Prologue," by Alan D. Sexton 59
I Speak for Teachers, by Robert J. Warpinski. 61
Mandating Preservice EE Teacher Training: The Wisconsin Experience, by Richard J. Wilke 63

HIGHER EDUCATION:

Environmental Education at The Ohio State University: Structure/Status/Future, by Robert E. Roth. 65
Behavior and Environment: School of Natural Resources, The University of Michigan, by William B. Stapp 71

CONTENTS (con't)

GOVERNMENTAL ORGANIZATIONS:

EE Action, Federal Level, by Andrew S. Adams. 79
Natural Resource and Environmental Education in the Forest Service, by Eddie Anderson. 80
Education Futures, U. S. Fish and Wildlife Service, by Conley L. Moffett. 84
Government Responsibility and EE, by Rudolph J. H. Schafer. 87
Four Points of Government-EE Interaction, by Thomas W. Levermann. . 88

INDUSTRY/BUSINESS:

Energy Source Education Program - A Partnership Approach That Works! by Beth A. Johnson 91
Education Program, American Forest Institute, by June McSwain . . . 92
Learning by Design: The AIA Environmental Education Program, by Alan R. Sandler. 94

YOUTH ORGANIZATIONS:

Elliott Wildlife Values Project, Girl Scouts of the U.S.A., by Carolyn L. Kennedy 97

GENERAL SESSION: RESOLUTIONS FROM THE FLOOR 100

GENERAL SESSION: RECOMMENDATIONS OF INTEREST GROUPS

Index to Recommendations. 105

I. Environmental Education Centers 106
II. Environmental Education Literacy. 111
III. Environmental Education Networking Systems: Institutional Arrangements and Communications 125
IV. Environmental Education Support 137

APPENDICES

A. Evaluation Committee Report - The Special Role of Evaluation, by D. A. Pemberton, L. M. Lansky, and M. J. Bradbury. 142
B. Roster of Registrants 160
C. Coalition for Addressing the First EE Congress. 169

Foreword

The environmental education community has gotten together periodically to discuss major issues since 1970 when the first national meeting was held at Green Bay, Wisconsin. The timing of these meetings was somewhat sporadic but there was a general tendency to build on ideas from the past meetings. The first of these meetings sponsored by the Alliance for Environmental Education (AEE) was held in Snowmass, Colorado in 1975 and was followed in 1976 by a meeting in St. Louis that focused on input to the formal presentations of the United States and Canadian governments to the international governmental meeting to be held in Tbilisi, USSR. Shortly following the 1977 Tbilisi meeting the AEE sponsored a meeting in Washington, D.C. to review the recommendations from Tbilisi and to determine what actions on them this country should take. This meeting focused on the theme "From Ought to Action," and was held in early 1978.

With the change in national administration in 1980 significant changes in federal education and environmental policy were put in place. Many of these were very disturbing to the EE community, reversing, as they did, more than a decade of hard work and positive action. Confusion abounded about what directions to take to either reverse these new trends or to shape a new direction of our own. Many affiliates of the AEE began to feel the need for another conclave to mutually discuss directions and share new approaches. At their annual meetings, The Conservation Education Association and The American Nature Study Society each passed resolutions requesting the AEE, as a neutral broker, to convene such a joint meeting of organizations.

Chuck Roth, then president of the AEE, responded by sending out a memorandum of invitation to all affiliates recommending not only that such a meeting be held but that it be a pilot for such joint convenings to be held regularly every three to five years, with sponsors agreeing to by-pass their own separate annual meetings those years to focus energy and resources on the joint convention in order to maximize creative input, reduce competition for travel funds, and provide a large enough convention to attract major national publicity for the event and the movement.

The concept of a pilot effort was approved by the AEE Executive Committee and put forth to the EE community. Roth and the presidents of other environmental education organizations were invited by the convenors of the National Outdoor Recreation Conference to meet and discuss the concept further at Asilomar, California and as a result, the door was opened for some other interested organizations outside AEE to participate.

After the Asilomar meeting the first truly organizational meeting was convened in the Washington, D.C. area to determine the nuts and bolts of how the various organizations would participate. Convened by AEE, but independent of it, this group had to work out how the finances would be handled, determine the date and potential locations, determine what committees would be needed and how the membership on these would be determined, and solve other such practical problems.

The result of all this was that AEE appointed Jack Padalino as overall Conference Coordinator, made a no-interest loan to the meeting (hereafter to be known as the First National Congress on Environmental Education Futures) to take care of front-end expenses, and appointed its Treasurer, Malcolm Crooks, to chair the Finance Committee. Congress sponsors would share the financial risks and benefits of putting on the Congress while Congress co-sponsors would provide a variety of services but were not involved in those financial risks and benefits. Co-sponsors did not have to be members of the AEE.

By the time the complex groundwork had been laid there were barely 18 months time to choose a site, assemble the working committees, design the program, and do the myriad details necessary for putting on any national convention. Everything was further complicated by the need to juggle information flow among the various sponsors and co-sponsors to get everything accomplished in sequence and according to schedule. The road to this Congress proved to be full of rocks and pot-holes and there were times when the fragile vehicle traversing that road seemed destined to be hopelessly shaken apart, but the vehicle proved to be held together with indominitable bonds of cooperation, volunteerism, and professionalism, and the Congress came together very successfully. A true sense of community permeated this gathering of environmental educators from many different organizations and work places, and the recommendations of the Congress reported herein reflect not only a reworking and refining of the flow of thought from previous conclaves but a considerable sense of agreement among the participants concerning directions for the movement. The challenge now lies in turning recommendations into action and accomplishment.

We, the undersigned, feel privileged to have been associated with such an assemblage of dedicated people and proud that our respective organizations were able to promote and sponsor such an effort.

For the Alliance for Environmental Education:

Charles E. Roth, President (1982)

William F. Hammond, President (1983)

John J. Padalino, President (1984)

For the American Nature Study Society:

Talbert B. Spence, President (1983)

John J. Kirk, President (1984)

For the Conservation Education Association:

John G. Hewston, President (1983-1984)

Charge to the Congress

*John J. Padalino**
Congress Coordinator

As we gather in Burlington at our First National Congress for Environmental Education Futures: Policies and Practices, we have much to accomplish. Most of us agree that problems exist with environmental education, and that something must be done to resolve them. This "something" is a primary challenge for those of us who represent the twenty-one organizations that are now collectively addressing national issues in environmental education.

A recent report from the National Commission on Excellence in Education is generating talk that education will be a major issue in the 1984 presidential campaign. All this talk should seem heartening to environmental educators. However, are we ready for it? Do we have a vision, a concensus on goals, a sense of priorities within our own organizations, let alone with regard to state, regional, and national environmental education needs? The answers vary from organization to organization, and even within our organizations. There appears to be little concurrence as to how best to pursue the quest for excellence in environmental education. Yes, environmental education will need financing. However, merely to ask government for more, as we did in the seventies, probably won't work. Neither will a divided front. A model is needed for environmental organizations, governmental and non-governmental, that helps us to work better cooperatively. Diversity is still a desireable characteristic within our national environmental education movement. It remains a source of our strength. Efforts to enhance excellence and to expand public support must be pressed by the conjoining of interests that embrace all sectors of the environmental education community. These efforts will require cooperation and commitment as never before. The demand for active leadership and statesmanship among us is at its greatest. This Congress marks the beginning of a major new initiative that focuses on action in arenas of both policy and practice. There are active leaders from key organizations present. This Congress is supported by a diversity of interests, representing business, industry, foundations, and education. Welcome, to the first Congress of this nature. The Congress steering committee, together with their members, have worked diligently to plan and present one of the more timely, important, national educational meetings ever.

The new connections, web of networks, and interactions between and among people with kindred interests, has helped to make this initiative one of excitement and promise. I thank and congratulate all who helped with the Congress. The success of their hard work will be measured by your reaction and evaluations. It will be measured by changes that occur in your thoughts and actions during the ensuing years. It may be appropriate to reconvene in 1988 to assess our action, as we borrow a world from future generations. Welcome!

**Mr. Padalino is Director, Pocono Environmental Education Center, Dingmans Ferry, PA.*

Overview & Keynote — Changing Strategies for Changing Times: A Call to Action

*John R. Paulk**
Program Chairman

Whoever said the only constant in life is change?

Take the landscape, for instance. Year by decade, nature can transform a grassy field into a mature climax forest. And then in as little as a day what may have seemed permanent is altered forever by fire, or perhaps at the whim of a developer, or some other catastrophe. And the process of change continues.

Environmental consciousness born in the late 1960's was much like the seedlings that began the forest. A great wave of citizen indignation and concern over environmental degradation grew as public consciousness focused on choking smog in the air and oil on the waters. And we--environmental educators--responded to the new challenges set before us. We began in isolated localities responding to local situations. Environmental programs sprouted up all over the country. The problems were not just local, however. They faced us as a nation and as a global society. Environmental educators needed to unite and adopt common philosophies, goals, plans of action, and strategies in order to meet the challenges of resource degradation and maintain a livable planet. We needed to mature.

Evidence of our growth is reflected in a number of conferences held in the United States as well as internationally. These conferences were designed to foster the professional development of environmental education. Three of them were organized by the Alliance for Environmental Education specifically to monitor the status of the field and to recommend procedures and strategies for its development.

The Snowmass Conference on Environmental Education held in 1975, co-sponsored by the Western Regional Environmental Education Council, reviewed the status of programs and accomplishments in the field, identified ideals and objectives toward which environmental education should be working, and suggested ways and means of achieving those objectives. The primary outcome of the Snowmass Conference was that those present--a wide spectrum of interests were represented--found that they agreed very well on what they believed, and to some large extent on what they felt should be done. Whether those recommendations were "practical," in the sense that they could be implemented, was another matter.

The October 1976 North American Regional Seminar held in St. Louis had an international focus. Coming between the 1975 Belgrade International Workshop and the 1977 Intergovernmental Conference in Tbilisi, it attempted to provide a "North American Bridge" between them. This conference did not report consensus recommendations of participants, but instead targeted on the important issues related to environment in Canada and the United States.

---

*Mr. Paulk is Director, Division of Land and Forest Resources, TVA, Norris, TN, 37828, and President-elect, Alliance for Environmental Education.

The most recent Alliance-sponsored national conference, as well as the most recent issue-focused national environmental education conference held in the United States, was the From Ought to Action National Leadership Conference in Washington, D.C., in March 1978. From it emerged a set of 16 recommendations from 5 working areas encompassing the Federal Role, State Legislation, State-Level Networking, Teacher Inservice Education, and Accessibility and Dissemination of Materials. The general format for presentation of recommendations was to begin with a statement of a recommendation and follow through to implementation. The process included:

- A statement of the recommendation--that is, a should statement; something should be done, someone should do something;
- A statement of target--to whom is this recommendation directed for action and accomplishment?
- A statement of constraints--that is, why isn't this already being done, or what are the barriers to accomplishing this?
- A statement of strategies--that is, what methods or procedures might be employed to achieve this recommendation?
- A statement of responsibilities--who should do what in terms of employing the strategies?
- A monitoring statement--that is, who should keep tabs on progress toward accomplishment of this recommendation, with the strong implication that the monitor should provide appropriate prods.

It was with the recommendations of these conferences that environmental educators united in purpose.

The Environmental Education community has grown like a young forest. Working individually and in partnership on many fronts, we have made considerable progress in creating public awareness through environmental education.

Goals that many of us have been committed to for decades, we saw emerge to the national conscious during the 70's. The Vietnam war, the Iranian crisis, the economy, and now the Central American situation have all diverted public attention away from environmental issues. However, environmental problems are far from being ameliorated. The enthusiasm of this earlier period, reflected in our accomplishments on many fronts, must be renewed. This is not a time for complacence but for renewed commitment to our cause of environmental literacy. Our fundamental underlying goals, based on solid scientific concerns for the future of humanity, are as sound as ever. This week we have come together to reexamine the 16 recommendations we made at the 1978 conference, to consider whether each is still valid, and then prioritize them with respect to the individual concerns of the various interest groups represented here. At this same time, you are encouraged to eliminate outdated recommendations and to add more current, or more pertinent, ones. Five years have passed since they were promulgated; many things are certainly not the same. While we still must continue to address ourselves to "bread and butter issues of the '70's," we must also give equal attention to the environmental education challenges of the '80s. Our recommendations must be contemporary and reflect the concerns of not only today, but the next decade.

Previous Alliance conferences have built upon one another in the sense that there has been escalation in the level of sophistication of statements of concern, recommendation, and so on. We have seen an increasing recognition of the need for practicality--that is, who's actually going to do it, whatever it is. However, the conferences have not built upon one another, in that no conscious effort has been made to start directly from the output of previous conferences. Those of us who have participated in these past conferences felt varying levels of frustration in starting more or less from scratch each time, though (of course) we recognize that those who are participating for the first time need both the opportunity to find out what has preceded, and the chance to enter their own particular concerns into the agenda. For that reason, the Program Committee for this Congress has recommended the present format which is actually quite similar to the 1978 format. We hope this week to see substantive progress, past the point where the 1978 conference left off. For example:

- Should we be looking at the role of environmental education, and the opportunities for it, in a post-industrial society?
- What methods and techniques will we use to bring these issues to the forefront of public consciousness?
- How should we relate to high technology, to resource management, and to the growing international concerns over food, water quality, energy, and population?
- How can we interrelate environmental education with the reawakening of the need for science and math proficiency, for technology training, and for integrated resource management on a national and international level?
- How can we ensure that environmental education survives to impact these issues and questions?
- How will we ensure that these things occur?
- And most importantly, how will we know if we've succeeded?

The 1978 recommendations were largely targeted on Federal and State governmental agencies. Only one was directed, and that only in part, to anyone at the local level. In every instance, the Alliance for Environmental Education and/or its President or Board of Directors were charged with monitoring.

Other conferences have fallen short of actually achieving the goals we set forth because we directed our recommendations chiefly to government agencies which may or may not have the power to implement them, and because we concentrated more on the recommendations than the implementation and evaluation of our plans. We've let our progress and our failures go unchecked. We've charged basically one agency with monitoring all our recommendations instead of taking more individual responsibility for our decisions.

Were the Assistant Secretary of Education, or the Office of Environmental Education, or the State legislatures, governors, and offices, ever really aware of what we wanted them to do? From their perspectives, were our recommendations reasonable, viable, important? And what might they really have done to implement them? Are, or were, their roles, as we perceived them, viable in terms of their own obligations, requirements, and agendas?

Perhaps a quotation from the Federal Government Agencies group report at the 1975 Snowmass conference, one which had apparently not "sunk in" by the time of the 1978 conference, will help make the point:

> "We (these are Federal agency people speaking) recognize that the Federal government does not view environmental education as an end in itself, but rather serves it as the mission responsibilities of the several agencies dictate. This is likely to mean in the future (as in the present) Federal support for environmental education will be modest in amount and uneven in coverage. Environmental education will receive Federal support only when it represents the delivery mode of choice, competing against legislation, regulation, delegation to State or local jurisdiction, etc. The Federal government will, however, attempt to target its efforts in a manner calculated to achieve significant results."

In other words, Government--can give you everything you want and can take everything you have. Clearly, this statement can be generalized, and should be generalized, to all of those "targets"--Federal, State, local, private, public, whatever. But it just may be that some of our targets should be a little closer to home--our professional associations and organizations, our own places of employment and/or volunteer efforts, ourselves.

Is it practical, let alone reasonable, to expect the Alliance for Environmental Education to carry the full monitoring burden? Are there monitoring roles for the Conservation Education Association, the American Nature Study Society, and/or the other co-sponsors of this Congress? Beyond that, are such organizations appropriate targets for recommendations?

Where does all of this leave us? Challenged, I hope; challenged to refine, perhaps redevelop and redefine, those recommendations from which we start, adding or deleting as we see appropriate. Challenged to recognize what constitutes a fair "target," one which might actually be able to implement, or assist in the implementation, of any given recommendation, then challenged to work with them to get the job done.

We will meet here Tuesday to hear from each other, hopefully to assemble a package which is both realistic and implementable. Those of you on the policies track will be critically reviewing our previous recommendations, and will be providing us with new insights from which to develop our new guiding strategies. Equally important, those of you on the practices track will be honing your skills this week, sharing and expanding on programs through which the recommendations made here will become reality. Both tracks will play a vital role in developing a plan which will carry us forth for the next 5 years.

Unlike the forest which only responds to change, we have the power to direct change. We do not need to wait for adversity to strike or problems to be right at hand; we can plan for the future--direct our own growth. Sure, we must be flexible enough to respond to changing situations, but we can and must be prepared to deal with the environmental challenges of the '80s.

Plenary Meeting Presentations

Remarks on Assuming the Presidency of the American Nature Study Society

*John J. Kirk**

As I accept the gavel, which is the symbol of the Presidency of the American Nature Study Society, from my good friend, Tal Spence, I feel the mixed emotions of gratitude, pride, and humility: gratitude to the members of the Society for making this all possible; a sense of pride at being permitted to function in this role; and a sense of humility upon reading the scroll which lists the signatures of all past presidents. This list reads like a Conservation Hall of Fame for the United States and it is certainly a humbling experience to be included in the company of such distinguished individuals.

I also wish to offer a special thank-you to my friend, Tal Spence, for he did so much during his two year term to extend the objectives and goals of this organization, and the time he has spent with me, preparing me to continue the efforts which he initiated, is most appreciated. I also want to thank Jack Padalino, who preceeded Tal. Jack is a former student of mine and now I find myself following him. He too has been very helpful in making suggestions on plans for the future. I also want to congratulate all of the award winners today and very special congratulations to all the past presidents, whose efforts and skill have made it possible for us to celebrate the Seventy-fifth Anniversary of the American Nature Study Society.

It also seems most fitting that we are here at the University of Vermont for this celebration. For it was here on this campus that George Perkins Marsh, with his outstanding text entitled Man and Nature, published in 1860, first aroused the curiosity and interest of the American people concerning the need for conservation; a goal which the American Nature Study Society has pursued for seventy-five years.

As I begin to serve you, the members of the Society, I feel it is important for all of us to look to the remainder of the eighties and determine that which is most important. I feel that this Society must first continue its traditional role in the conservation/environmental movement which, as you all know, falls in the area of curriculum development, teacher training, adult education, research, and land management. For the past seventy-five years, the American Nature Study Society has been a pioneer in all of these areas and its members have distinguished themselves with their many contributions to the conservation and environmental movement.

In addition to these traditional roles, there are two additional areas we must address if the environmental movement is to succeed in this country. First, it is important for all of us to become politically active and work for the election of those individuals who recognize the importance and significance of a quality environment for all people. We cannot afford another four years of the type of leadership we have in Washington today. It is not enough to criticize the efforts of James Watt, for he is merely a symptom.

**Dr. Kirk is Director of the New Jersey State School of Conservation, Branchville, NJ.*

Who is James Watt, anyway? Nothing more than a man with a law degree and a set of misplaced values. He is not the problem. The problem is in the White House. This is the first time in American history that we have had a President who is actually hostile toward the concepts of conservation and preservation of natural resources. It is because of his value system that James Watt is permitted to continue his tragic and devastating course as Secretary of the Interior.

Not only has this administration wreaked havoc from an environmental point of view in our country, but decisions have been made which have caused the United States to lose the respect and admiration we once held among the community of nations. On October 28, 1982, in the General Assembly of the United Nations, the World Charter for Nature came up for a vote. This is a wonderful document which states very clearly and concisely the need for all the nations of the world to work cooperatively in the preservation and wise use of natural resources. It calls upon the nations of the world to work toward the concept of a Global Commons concerning the natural resources of the world. When the final vote on this wonderful document was tallied, the results read one hundred eleven nations for the World Charter and one nation opposed. The one negative vote was cast by the representative of the United States of America. This is shocking and unbelievable. I felt compelled to contact some of my friends in other countries and offer my regrets for this decision and inform them that this action does not represent the feeling and concern for resource management felt by most Americans.

We cannot allow this type of leadership to continue. It matters not whether you are Republican, or Democrat, or Independent. First, we must all be Americans, and only through sound environmental policy are the best interests of this country being served. If you wish to pursue the Republican philosophy in government, then seek out the Mark Hatfield's of the Republican party. If you choose the Democratic party approach, then seek out the Stuart Udall's in the Democratic party. These are the type of individuals that we must have in the White House. These are the type of individuals who must set the course for the future to protect the natural resources of this country, and the resources of the world. We need a President who is reaching out to negotiate treaties to establish the concept of the Global Commons for the forest resources of the world and a sound policy regarding our precious marine environment. We need to be the leaders in encouraging the United Nations in their noble efforts. Dr. Noel Brown, who was the opening speaker at this Congress, is truly an inspiration in formulating sound environmental policy. We should be encouraging him here in North America and applauding his efforts abroad. The United Nations have given us the World Conservation Strategy, one of the most unique documents ever developed. This is the master plan and it is already in place. We must use this document as we develop programs at all levels of education.

Secondly, we must also elect political leaders who recognize the utter stupidity that exists in a nuclear arms race. We must have men and women in the Congress and in the governor's offices and in the White House, who will try and use the prestige and influence of this great country to establish first a nuclear freeze and, ultimately, a complete nuclear disarmament. There must never be another nuclear attack anywhere in the world. All one must do is walk the streets of any of the great cities in Japan on the anniversary of the bombing of Hiroshima, as I did two summers ago, and hear the stories of that tragedy, where the evidence is still present in the genetic mutations of the survivors. When that bomb was dropped, we did not know of the full consequences of using such an inhumane weapon. Now we know! There will be no excuse the next time and we must see that there never is a next time. A nuclear holocaust is the greatest environmental threat to survival and must be eliminated.

These are the areas of concern as we view the eighties. It is my hope that all of you who are members of the American Nature Study Society will lend me your support and offer your suggestions and guidance as we continue our efforts to preserve and enhance the natural resources of this country and the world.

There is an organization called the Christophers who have as their motto, "It is better to light one candle than to curse the darkness." I would like to suggest that if each of us would light our candle and hold it high and share that light and call upon the members of the other conservation groups that comprise this Congress to also hold their candles high in unison with us, then the resulting glow would illuminate the world. Let this be our goal during the remainder of the eighties.

Environmental Education for the Eighties

*Noel Brown**

Let me express my appreciation to the convenors of this conference, the First National Congress for Environmental Education Futures. I say this for two reasons. First, the title betrays a certain commitment and a certain optimism. Anyone today who thinks and talks about the future as positively as this group has can only be committed to life. To be commited to the future today is to be committed to life. When you talk about life, you are talking about the environment. Second, I'm extremely pleased to see that the question of environmental education retains its place on your agenda. Most of us were around in the '70s when environment was high on everyone's list. At that time I think one can say without doubt that this was a concensus issue, both at the United Nations and in many parts of the world. Stockholm was a great expression and reflection of this. Since that time I think many environmentalists have run for cover, as we talk about inflation and recession and what else. The fact is, however, the core remains intact, and that I believe is expressed here this evening in your presence, and we in the environmental community and at the United Nations can only commend you for your commitment, and more especially for the commitment you have made to enlightenment in this particular area. Finally, I would like to express on behalf of my program, the United Nations Environmental Programme, our profound appreciation for honoring us with an invitation to be part of your efforts this evening. We in UNEP believe that part of our mission is to help in this process of enlightenment, of global enlightenment, and to be in Burlington tonight and some place else next week gives us a sense of reassurance that we are indeed discharging our mandate, and for that reason we are extremely pleased to be here.

One of the advantages of living in an opinion society, an open society, like the United States, is that one is constantly exposed to a range of ideas and views which might not always contribute to one's enlightenment but most certainly enriches one's vocabulary. Such was the situation about a year ago when a great deal was being reported about the state of the environment in the United States. For example, what was reportedly a House Republican study committee report, which among other things charged that the specter of environmentalism haunts America by threatening to inhibit natural resources development and economic growth. A failure to recognize this and to respond accordingly, the report went on, compromises the natural resource development objectives supported by the majority of the American people. It went on to describe environmentalists as fundamentally self-interested elite, leisure class (and, I suppose, when you hold a conference in Burlington, Vermont in the summer, it does say something), who are self-motivated to thwart economic development because only they appear to garner the benefits of extremist environmental protection. This report was suspiciously similar in tone to an article appearing in the Wall Street Journal some years ago which cautioned its readers that the next time you wonder why economic growth is suffering because of the fanaticism of a few environmentalists, then you know whom to blame. I suppose this kind of illiteracy was quite fashionable among certain sectors for some time, but this was a report which appeared last year. That report was followed, however, in short order, by another report prepared by ten environmental groups, entitled "Indictment." It went on to charge that the senior managers of United States environmental affairs were guilty of wholesale giveaway of the nation's natural heritage and the adoption of

---

**Dr. Brown is Director, United Nations Environmental Programme, New York, NY.*

policies that protected the polluters at the expense of public health. Similar charges and countercharges are appearing with astonishing frequency in the daily presses around the nation, but in spite of the stridency of the position of the proponents and opponents on these issues, there seems to be ground for encouragement, if not optimism. In the ten years since the Stockholm conference, the environment remains as a major issue at the national level and could very well inspire a serious public debate on critical environmental problems facing the nation in the '80s and beyond.

If you look behind the headlines and strident rhetoric, I think you might conclude with us at the United Nations that in the United States today there is a healthy debate taking place on some fundamental environmental questions. This would seem to be to me a major challenge to educators to raise the level and quality of this debate as it converges on public consciousness, and to generate a new public literacy on things environmental. The United States experiment, we believe, is quite important because similar debates are now taking place in various parts of the world, and especially in this hemisphere. It was just one year ago that the government of Columbia convened a national conference called ECOLUMBIA to review environmental priorities and the challenges facing that nation, and to formulate a strategy for action. The Columbia meeting was followed closely by a conference called by the government of Mexico, and those of us who have been to Mexico, and especially Mexico City, can appreciate the government's need to focus on environmental questions, not only hemispherically but nationally. That government called a conference to review critical environmental issues facing the Hemisphere, and to begin a dialogue on a reasonable program of action for the protection and enhancement of the considerable environmental endowment of the Americas for present and future generations. The United Nations community hopes to build on such momentum generated by such efforts, by convening next year a Pan-American conference of non-governmental organizations (NGO's) in which we hope that many of you will participate.

Such developments as we have described lead us to the conclusion that in a single decade environment has become not only a working global vocabulary, but a new global value which most states share, a value that is steadily becoming institutionalized in many parts of the world.

I am sure that many of you here were at Stockholm with us in 1972 when less than ten governments had any kind of environmental machinery. Today that figure is one hundred forty four. We consider this evolution nothing short of revolutionary. The United Nations has no enforcement capability to force governments to establish this kind of machinery. To demonstrate that such institutions are working, one tends now and then to do an assessment of the percentage of national budgets that are being earmarked for environmental protection at the national level, even in the Third World. The record is encouraging if not impressive. That is one index that we have been using to give us some reference as to how far we have come in a single decade.

Within the OECD Community we're rather impressed as to the extent to which environmental legislation has now evolved at a rather dramatic pace. This encourages us to believe that in the developed world at least, the leadership is being maintained, and this particularly in the United States. We read the newspaper, and we know there's a debate taking place, and we know there is considerable criticism about the posture of the United States on many environmental questions. We simply ask you to read closely your own Congressional debates and look at the record in a decade. The report that we have suggests that in a single decade you have adopted more legislation and taken more serious measures in environmental protection than you have done in the previous two-hundred years. Many people have asked me to comment, because I am stationed in North America, about the United States record on environmental questions, how it compares with other countires. Without being patronizing, I can tell you that while you have many difficulties to face and many challenges still ahead, the U.S. record is second to none on environmental leadership and protection. We can document that fairly easily, because we monitor five of your daily newspapers and have a pretty good record for eight years on what you've been doing on this front. There are many people who ask me how do you compare that with the other major powers, and again we find it difficult to make direct comparisons with other governments. Most of us read the public press, and you will recall that when you had your Alaska pipeline controversy, the environmentalists were prodding and demanding that assessments be done. Today we have another pipeline going across Europe, and I have not heard of any environmental impact assessment being done. Maybe it is being done, but we see no similar public effort along these lines. A rather interesting comparison. We know the politics of the two pipelines, but the environmental aspect is one that we think should be studied closely and compared, and here I believe the U.S., again, would not need to apologize. On that front we are encouraged.

We are also encouraged by the fact that most states around the world have developed some type of procedure or methodology for the assessment of environmental effects of a number of development activities. This is now being generated and propelled by the work of the developmental financing agencies within the United Nations family. For many people the feeling is that most developing countries will try to forego environmental considerations in their development plans because of the price and costs. We can assure you that with leadership by groups like the World Bank and other major economic development financing agencies, the environment implications of development activities are now being built into the planning and initial phases, and many developing countries are discovering that this is cheaper than to retrofit systems after the fact. For that reason we are pleased with this level of development.

And finally, we are greatly encouraged by the extent to which the private sector are beginning to assume a level of environmental responsibility that we find to accelerate the work of the United Nations in this area.

Earlier this year I visited the headquarters of CIBA-Geigy in Basel, Switzerland, and I must say I was impressed when we visited their ecological labs as to the kind of work they are doing. They showed us their fisheries sector, and the fact that every week they receive a consignment of fish from the United States, to run these through a variety of test procedures, in order to determine the effects of certain types of chemicals and pesticides on these life forms. They assured me that if these fish survive for two weeks, we eat them. So when I was invited to the cafeteria, I had veal instead! Seriously, CIBA tells us that ten percent of their capital investment every year goes for environmental protection measures. They tell us further that they have a direct responsibility for what happens globally because only four percent of their sales occur in Switzerland - ninety-six percent is international, hence what happens in the international community is a responsibility for them. It's also interesting that CIBA has developed some rather exciting systems for waste management, and many of you may know that dioxin soil-contaminated products found in France recently may be incinerated at CIBA, one example of an industry that now seems determined to bear some corporate responsibility.

Recently ITT announced that it had developed a process dealing with schistosomiasis. As environmentalists I don't have to remind you that this water-borne disease affects two hundred million people around the world, in the Third World. Here is a corporate entity that discovered a waste product that may be effective in combatting schistosomiasis. I might also report that Goodyear had also advised us that it had a process for dealing with PCB's, and is now experimenting very closely with ways of disposing of this. More immediately relevant to my region in the Carribean, (and since I learned that two people are here from Trinidad tonight, which makes our meeting international in focus) Texaco made available about sixty acres of its oil lands to a small group that had developed a wildfowl trust, and this group has now launched a rather major environmental training and educational center for the protection and rehabilitation of certain wildlife forms. Now as Americans, you may not think this has much relevance for you, but it so happens that Trinidad is on the flight path of migratory birds, and quite a number of these birds showed very serious impacts of different types of environmental degradation. I'm not sure how many of you are aware of the fact that the ring-top can, which is a very efficient mechanism for convenience foods, has its hazards for certain types of birds, and I have seen pictures with their lower beak caught in it and suffocated. At the wildfowl trust in Trinidad they are trying to identify these birds and rescue them. I was disappointed to learn tonight that Texaco may be leaving the country, and this particular experiment may not be able to proceed. I certainly hope that as we talk about environmental education, as we talk about raising the literacy level and the responsibility level, that things like this may be allowed to attract much more attention than it has in the past.

But I raise the question of the corporate responsibility and corporate partnership because we in UNEP hope next year to convene a conference on industry and the environment, to bring together the industrial leadership of the world to review with us what has been accomplished by the private sector, what has been accomplished on environmental protection in the past decade. They tell us quite convincingly that every year they invest large sums of money in environmental protection. We would like to know what this money has bought, what is the knowledge base on which the private sector is operating. Is it possible that some of this information may be deployed more effectively and associated with educational work that is being contemplated for us in the eighties? Is it possible for us to start with the private sector a real dialogue with Third World leadership? We hope to convene a conference of about six hundred. with about three hundred from the developing countries, to start a serious dialogue with the private sector, with the corporate community, to determine how far we have made progress and gains in environmental protection and environmental management, to see how far we might be able to continue dialogue between the two sectors on environmental protection, and to see how best we might be able to develop joint arrangements wherein we can involve, on a continuing basis, the private sector in some of the work of the world.

I've been at the United Nations a number of years, and I must say that we still insist on dealing almost exclusively with governments, only grudgingly with the non-governmental community. Perhaps Maurice Strong was right when he called the private sector the second tier, and that perhaps the time has now come for us to be more closely associated with the second tier. On environmental questions, I cannot think of a more logical and rational approach than this one. After all, they have the skills, they have the wealth, and they have the knowledge base. When you look at the kind of expertise available within that community, it would seem unreasonable and perhaps irrational that we have not tapped it more effectively up to this time. We hope that we can start a process within the United Nations family, that we can move beyond the Nestle controversy and different types of activities that might create difficulties with the private sector, and bring them into a partnership relation on the question of environmental protection. If this kind of partnership could be worked out, then we may have the main ingredients for a serious educational program that might effectively enlighten, not only those of us in the non-governmental community or the governmental community, but also in the private sector, where such enlightenment would have untold benefits. We are encouraged that progress is being made and can be made with imagination and initiative.

And finally, I would like to suggest in my overview that we are rather encouraged by the extent to which a body of environmental law is now evolving, and with that an environmental diplomacy. We may talk about a new literacy, but perhaps this new literacy may be expressive of a new diplomacy, and as conservationists, and environmentalists, you may become the diplomats to speak for nature, to speak for life forms, and to negotiate on behalf of those who cannot defend themselves. About three years ago, at the height of the Iranian hostage crisis, I received a frantic call from the Siberian Crane Foundation, where they advised me that their records show that only fifty-five Siberian cranes are known to be alive in the world, and that these were on their northward flight back to Europe, and they would have to overfly Iran and Afghanistan. They wondered whether the United Nations could guarantee safe-conduct for the Siberian crane at this time. This provided an amusing note, but also revealed a more serious effort - namely, who speaks for nature? Who negotiates on behalf of the defenseless?

All of you, I'm sure, suffer the same anguish we do when we read reports coming out of Africa or any warfare theater that shows where life forms have been jeopardized: the big guns in Uganda, and places like this, and where the elephant and rhinoceros pays the price. Who speaks for nature at this time? Can we educate for a new type of responsibility; can we educate for a new type of diplomacy ? I went to the Foreign Service School at Georgetown, one of the best in the world, and I can assure you that this is a school that addresses a large number of very critical issues facing the human community and that are relevant to the human story - yet at that time we were not addressing environment as a diplomatic issue. And yet, what do we find today? In the Gulf region there is an oil spill that could threaten life and the well-being of the people there. We cannot seem to bring a diplomacy to bear on that spill. That too is an issue that we need to address very vividly. Perhaps as we talk about environmental education for the eighties, we may try to develop course material for the new diplomacy, for environmental diplomacy. I'd like to challenge Georgetown and all the schools of higher education and law schools, to incorporate into their curriculum this environmental diplomacy. You cannot lose when you negotiate on behalf of nature.

Canada is beginning to experience this. They discovered that its wildlife, which winters in the tropical zones, when they return to the arctic regions show very strong signs of deterioration because their habitats have been destroyed or forests cut down, or they may be contaminated with pesticides and other toxic materials that may be banned for use in Canada. Canadians are now beginning to negotiate a series of agreements with Latin American and Carribean governments for the protection of these life forms. We are encouraged by this type of environmental diplomacy. Recently we were encouraged by a new agreement among the ASEAN nations - Philippines, Malaysia, Singapore, Indonesia, and Thailand. These five states concluded this year an agreement to engage in common efforts and establish common standards for protecting the natural patrimony of the region. I told a friend that I consider this to be a major environmental alliance that may be more important in time than military alliances, and he smiled, and I continued by saying that, unless we protect the natural order, it may not be worth fighting over. Unless we can protect our natural environment we may find it or leave it in such a state that it might make war a joke. Hence a new alliance, a new diplomacy.

And finally, we are very encouraged by the fact that we are now evolving a series of world documents and world standards. The world charter of nature; a beginning - and at the sub-regional level, the Amazonian Treaty for the protection of that region. And now back to the beginning.

Ladies and gentlemen, I am suggesting these to you because as we talk about educating for the eighties, as we plan our educational strategies, I like to think that we move beyond the national environmental issues, urgent as they are and important as they are, and keep the perspective global. Rene DuBois coined the phrase "Think globally, act locally." I think he was issuing a challenge to educators, to help us evolve those thought patterns so we can get the larger perspectives, although we may be inspired to action at the local level. This to, then, is an element that encouraged us, and I would like to challenge you as educators to help us evolve a new diplomacy. And we need this new diplomacy as an educational aspect because the challenges facing the world community today are of immense gravity and urgency.

One simply has to look at any checklist to see the kind of issues that must be addressed without delay, and for which intellectual character and stamina and curiosity will have to be deployed. And here I'm talking about such things as deforestation, soil and water degradation, desertification, diseases associated with adverse environmental conditions, atmospheric changes, the problems of the pollution of the oceans, and the extinction of animal and plant species, not to mention the problems of waste.

Ladies and gentlemen, time does not permit our going into any details on the checklist, but I'm sure that as you sketch your agenda, you will ask yourselves, "education for what?" Education with what content, with what understanding? It would seem to me that we may want to look very quickly at the kind of challenges that are themselves so urgent that we need to address them as part of the educational program.

I'm talking about a new awareness for the protection of the atmospheric "commons." I'm not sure how many of you appreciate the fact that the atmosphere is a common resource. All of us now appreciate the new vocabularies that attend its breakdown or its degradation. We hear such phrases as "acid rain," which is now beginning to become a matter of very significant concern across the Canadian and American borders, a new household word; the problem of carbon dioxide, the extent to which this build-up is creating hazards for the world community. The ozone problem - it may have moved behind the headlines now, but it is a real problem nonetheless. Again, it's not simply the aspects of one or another subject that we need addressed, but education for our common responsibility for atmospheric resources. Did it ever occur to us before this period that we may have to manage the very chemistry of the atmosphere? That we have evolved so far and so fast that we now have the responsibility of managing the chemistry of the atmosphere as a life-support system? Again, I've told this story, but I was very moved by it. I had occasion recently to attend the lecture given by one of the astronauts who took one of the shuttle flights. We sat almost as he did with an on-board camera over his shoulder, and saw what he saw. The views of the earth are really quite extraordinary, and perhaps one of the great hopes for educators of space travel is the perspective that we all gain when we can look back at ourselves and get a better feeling for the planet called Earth. But he showed us a rather thin band that he described as the atmosphere. And then he said, if you want to get an appreciation of this, think of a coat of paint on a surface - relatively speaking, that's the thickness of the atmosphere vis-a-vis the Earth. He said your skin, the protective surface of your body, is thicker than the atmosphere relative to the size of the sphere of the Earth. And that's the only one we have or will ever have. If we destroy it beyond the point of recovery, then the possibility of its being replenished is well beyond our control. Can we educate for that kind of responsibility? Can we bring the kind of sensitivity in, that we now must protect and manage this resource as we have never done before? This too would seem a rather major challenge facing us.

We need to protect also our coastal resources. I'm not sure how many people understand that the ocean, as magnificent as it is, is not unlimited in its capacity to deal with the problems facing us. Recently, we published a report that showed that the oceans are extremely resilient, but that is not the issue. The issue is the coastal bands that surround the oceans, and the need for us to start anew programs of understanding coastal ecology and start protecting it. Recently I met a young marine biologist from Florida International University who is known in the popular vernacular as a "sea-grass lady." When I asked what her profession was, it was not that kind of "grass!" What was her profession? Well, she has now started replanting the Bay of Biscayne in Florida. She is replanting forty acres of sea grasses in that region, developing the technology for the restoration of the ocean floor, which she termed a biological desert. It would seem to me that this kind of responsibility needs to be replicated globally. In my own country recently, thanks to the United States government, a new program of coastal rehabilitation has been launched which includes replanting the sea grass beds. Why? Because these are natural buffering elements. They not only help to keep the waters clean, they provide shelter, they provide food, for approximately seventy percent of the ocean's life. I'm not entirely sure how far the educators in marine affairs are now teaching the technology for coastal ocean floors restoration, and what kind of mechanisms are developed for this purpose. This would seem, then, a new challenge for the educators that we must address.

What about the forests? Again we are being told that the CO_2 build-up is such that the world now stands in very serious jeopardy. But then again, the question that has to be asked is how far are we destroying the forests beyond the point where they may be able to perform their essential ecological function? What are the global minima of green spaces that the planet requires for us to live normally, and for the planet to function efficiently? I might tell you that we don't know. UNEP, under one of its monitoring programs, is now trying in cooperation with the FAO, to establish a base-line on the minimal forest cover required for the planet to function effectively. What we do know is that the world's forests reportedly contain some ninety percent of surface carbon on the earth, and if we cut these forests down, we're likely to create very serious harm for our own collective futures. That would seem to be a problem that must be addressed with a degree of urgency. I'd like again to challenge our educators to think of the connections, and think of the implications, of the destruction of the forests. In my own region, the Carribean, we have what approximates an ecological disaster area in the case of Haiti. Most of us are aware of the fact that that country today is approximately fifteen percent forested. The land is no longer moisture-retentive. The run-off, the loss of productive topsoil, is approximating a global shame. We are trying to replant fifty million trees in Haiti in five years, ten million a year. A new challenge, but that's not the issue. The issue is that once the agricultural base is destroyed, the land is no longer able to sustain the people, and I'd like to argue that the "boat people" are as much ecological refugees as they are economic and political refugees. We may find in them a symptom and a symbol of what the world may expect in the future when the ecological base is broken or cracked. Where will the people go? How will they choose a livelihood? And if one looks at the "horn of Africa" in East Africa, one can get suspicious symptoms of similar types of patterns emerging, and a new type of refugee emerging on the world. As educators, we challenge you to help us see these connections that will have political, economic, and sociological implications, because the boat people not only affect the United States in the first instance, surely there are other islands and states in the Carribean that are extremely apprehensive about similar human waves impacting on their shores in ways that they may not be able to contain. This, then, is a problem that I feel we need to address and for which we must educate.

And finally, I'd like to touch on two other points. One is the question of the waste budget that the world is generating, and the need to develop a new responsibility for disposal of hazardous products and hazardous wastes. The vocabularies are increasing as we learn of the "Love Canals" and the "Silicone Valleys" and the "Three-mile Islands," and you name it. Increasingly we are beginning to become aware of what is happening in terms of the build-up of waste, and what we need to do. Ladies and gentlemen, I'd like to speak as someone from the Third World on this point. In America I think your standards are evolving rather steadily, your capacity to monitor is improving very dramatically. I think you have a handle on the problem of hazardous wastes here. I'm not entirely sure the same may be said for the third world. I can think of any number of examples of the "midnight dumpers" where deals are made surreptitiously for the export and transport of hazardous products to developing countries.

We intercepted one event, one possibility, where a group wanted to export municipal sludge, the blue paint sludge, to Haiti. In our discussion they were trying to convince me of the fact that they would cook this sludge, remove the harmful products, and would have a product that would be fairly benign. We checked this out very thoroughly, only to find there is no such thing as safe sludge. Then they tried to assure us that if you want to reforest the country, they would use it largely for reforestation for fast-growing trees. We checked that out again, and one scientist told us that we have no conclusive evidence on this, but let me make a suggestion to you. He said that, if indeed you use this as a soil supplement, the possibility of a fast uptake in plant tissue is greatly heightened, and if you use the product for firewood (hence you burn it), you would aerosolize these materials in which case you create particles in the atmosphere which you'd breathe in, and the respiratory system is infinitely more efficient than the digestive system. If you aerosolize it, you could breathe it in and create problems. So there are complications here that I hope my scientific and educational colleagues will want to bear in mind. Look at the implications; look at the connections.

These are issues that cannot be allowed to go untended. We need to educate for a new type of responsibility, a responsibility for what happens "out there," because many times it comes back to haunt you. In the book "The Closing Circle," Barry Commoner makes the point very effectively that everything is related to everything else. I think removed of its slogan quality, it is a very profound statement. I'm not entirely sure how many Americans appreciate the fact that a good deal of the green coffee and some food products imported to the United States are contaminated with substances that are banned for use in this country, hence it returns home on your table. We need to educate for that new kind of responsibility.

There's one area where I think education needs to be expanded, and expanded rather dramatically, and that is in the area of recreation and leisure. This is not a theme that we have developed as rapidly and as frequently and as consistently as we should, but this is certainly one of the areas where I would like to draw to your attention the need for some sustained interest and sustained thought. What we are beginning to discover in the United Nations now is that vacation, recreation, is growing apace. We are now beginning to appreciate the fact that tourism is becoming a vital force, not only in economic development, but also for world peace. The U.N. has placed the issue in the larger context of human rights, since it is now recognized that tourism is an integral part of the life of nations and there's nothing that could be done to pursuade people to give up their right to travel on vacation. As stated in the Declaration of Manila two years ago, there is the right to holidays, the opportunity for a citizen to get to know his own environment, to develop a deeper awareness of his identify, and of solidarity that links him to all mankind. We are rather encouraged by the fact that tourism has grown from 140 million arrivals in 1967 to 240 million in 1977, in a single decade, and it's progressing that way. Now why do we make this point of this story? Simply to state that tourism is essentially an environmental industry, and tourism often has very, very impressive and significant impacts on the local environments. In my own country, which is a tourist country (Jamaica), our government is finally beginning to appreciate the fact that the environment is a capital resource. Clean air, clean water, and an agreeable landscape, are the products that we sell or trade, and to that extent we need to protect and enhance the natural order for economic reasons. I'd like to think that as we talk and think now about educating for the future that we lock at the question of leisure and learning. How often people visit exotic sites and remain unconscious of the objects of their visit. That somebody has to protect the wildlife, that someone has to ensure that the species remain intact, that we can see them, that someone has to run and manage the game farm, and be concerned about the elephants. I think that we can build in our educational program a greater sensitivity and a greater appreciation of the learning that must go into our travel and our leisure, and this I believe we can educate for. In his opening remarks the mayor made the point that among the issues we must be concerned with is war. I would like to conclude by suggesting to you that war is an environmental issue. You have couched your conference in the language of the future. There will not be a future for any of us unless we can contain and manage the way that we defend ourselves, and the systems we have designed for national and global security. We are impressed at the United Nations that finally a debate seems to be starting in earnest on the systems of defense. We want to challenge you, as educators, to start now redefining the new security and the new relationship that exists between ourselves and the natural order. We now have the capacity to undermine this planet, to destroy its ability to preserve life. I gave the example recently of a discussion I had with Cousteau when we were flying across the Amazon, and he made the point that we must protect and preserve our natural order and our genetic material, and protect them from large-scale harm, because, in his words, the planet has entered "middle age." It may be experiencing a "mid-life" crisis. It is four-and-a-half billion years old. In another four billion years it will have run its course. But that is not the point. Because it is a middle-age phenomenon, its regenerating capacity is not as robust and as resilient as it was when the planet was young. Hence, large scale nuclear war could devastate the replenishment capacity and the resiliency of the planet. Perhaps scientists will dispute that, but I'm not entirely convinced that scientists have all the answers, because they have not until very recently begun formulating some of the relevant questions. In a journal called "Ambio," in a series of studies on the environmental impact of nuclear war last year, came to a rather interesting point; that if we had a large-scale nuclear war, forget the fire storms, forget the blast, forget the heat, and think of the dust and the particulates that you loft into the atmosphere. This could very well darken the planet, and if it occurred in the spring, we might lose a growing season. Only now are scientists beginning to ask themselves, what are the atmospheric implications of large-scale nuclear war? We need to educate for this. We need now to challenge educators as never before. We need to appreciate that fact that as a result of changes in our production capacities, in our consumption abilities, in our wealth, and in the waste we have generated, in the speed, in our mobility, and in our numbers, we have created a world very new and intrinsically different than any we have known in the past. We have created a world so complex that we are no longer able to grasp the whole intuitively or naturally. It is much too complex, too many interacting parts for us. We need, therefore, an education that can help us come to terms with this world-in-the-making. What is the prescription, what is the agenda, what are the instruments, what are the tools? One has no answer for them. What one does have, and what one is very proud to be associated with, is a kind of spirit, the kind of commitment, and the kind of willingness, at least on the part of some, who are prepared to join the global effort in moving this process forward. I'm pleased tonight to announce, that the United Nations Environmental Programme is very keenly interested in developing a "Friends of UNEP" in the United States. I see my colleague Jim Aldrich is in the audience, whom we are going to ask to explore this for us, and to see whether or not it is possible now to link you more formally with the global process. To enable you to deal with the issues which are on our agenda, to provide you with feedback that can be fed into your own national and local programs, to bring to the classroom, or Burlington, what's happening in Nairobi or what is happening in Djarkata. We'd like to think that the Friends of UNFP may be the stepping stone to the United States Committee for the Environment comparable to the U.S. Committee for UNICEF. If we can push this forward, then we will have started a new type of democracy, a new type of learning if you will, that might help the world to appreciate what Americans have done as none other have done, and demonstrate what the non-governmental sector can do, and their willingness to shift that kind of experience across national boundaries. You have the most advanced states in the world. You have generated more wealth and distributed more widely than any other society on the face of the Earth. You have come a long way. We are very proud of the record you have demonstrated and the leadership you have provided. We'd like to challenge you to join us in making this part of a global exercise, to help us put the pieces where they belong, with the knowledge where it belongs. You have an open society, as I said at the beginning, and you have generated tremendous scientific information, which under your Freedom of Information Act you have made available to the world. We'd like you to organize this within your educational program so you can help us as part of this global learning. If we can generate a global learning strategy for environmental protection, then I think another small step will have been taken, and I think the future of environmental education will be much brighter. Thank you very much.

From Awareness to Action: The Next Step

M. Rupert Cutler[*]

Fellow practitioners of environmental education, it is time we spoke with one voice.

By the time we've adjourned this First National Congress for Environmental Education Futures on Wednesday, I trust we will have adopted a plan of action committing all of us to pull hard in the same direction, toward the prompt accomplishment of a short list of important action goals. Those goals should be designed to win broad public support for the notion that environmental education is as "basic" as the "three Rs", and to win effective political support for the public financing of both expanded informal environmental education (by land management and extension agencies and at community centers) and formal environmental education (in the classroom) through earmarked grants to state and local institutions for that purpose. More on those ideas later.

Certainly, I am glad to be here in Burlington, addressing this First National Congress for Environmental Education Futures. Your choice of Burlington and of Vermont for the Congress is particularly fitting.

- Just across Lake Champlain is the famous Adirondack State Park, to be kept "forever wild," an outstanding example of a state's foresight in protection of a vast natural area for future generations.

- Just 30 miles to the southeast is Camel's Hump, where studies by University of Vermont scientists have documented the direct adverse effects of acid rain on tree growth, a research site many of you will visit on one of the Congress' field trips.

- Our host state can boast the most environmentally aware and committed Congressional delegation of any of the states of the union. Vermont's Senators Bob Stafford and Pat Leahy and Congressman Jim Jeffords are champions in our campaigns in Washington for clean air, clean water, wise land use, and sustainable agriculture.

- Vermont's vast Green Mountain National Forest often exemplified multiple-use land management at its best, demonstrating how federal-state-community cooperation can result in both protection of the natural resource base and sustainable resource development.

- Vermont can be said to be one of the leading states in adopting wise land-use planning, in protecting farms and farmland and in adopting environmental safeguards that protect the natural qualities so valued by Vermonters and admired by its visitors.

---

[*] Mr. Cutler is Senior Vice President for Programs and Chapter Relations, National Audubon Society.

- And finally, in Vermont, we have a classic form of open democracy in the town meeting, which affords the citizenry a direct role in making policy and arriving at the decisions that directly shape their environment and their lives.

Obviously, I like to think of myself as one of you.

As the former editor of high school and college student newspapers and a bona fide small-town weekly newspaper, I often surprised my readers with accounts of such environmental issues as the state of our national parks. For example, precisely 30 years ago in the Michigan Daily I passed along Harper's magazine columnist Bernard DeVoto's warning that "It's time to shut down our National Parks until we can afford to rehabilitate them," in the report of an interview with a National Park Service naturalist visiting the Ann Arbor campus. And I quoted that naturalist himself as stating, "We may have to close the parks if the Federal Government doesn't reverse its trend toward economizing by cutting the Park Service's budget."

That was during the days when President Eisenhower and Interior Secretary (and Chevrolet salesman) Doug McKay were shrinking the size of our national wildlife refuge, forest and park systems. In their place today we have President Reagan and Interior Secretary (and commodity interests lawyer) James Watt selling our federal lands to the highest bidder.

Incidentally, Mr. Watt has just exempted Interior Department lands from the Administration's asset management program because he prefers to give the land away, for political purposes, instead: 25,000 acres of the Santa Fe National Forest to an Indian pueblo, 100,000 acres of Bureau of Land Management lands to the State of Utah, part of St. Matthews Island National Wildlife Refuge Wilderness in the Bering Sea to Atlantic-Richfield, and so on.

The pattern for this kind of behavior was set in the Harding Administration by Secretary of the Interior Albert B. Fall. Remember Teapot Dome? The Harding Administration's Watergate?

During the time I was education division chief at the Virginia Commission of Game and Inland Fisheries in the late '50s and early '60s, I was an active member of the American Association for Conservation Information--the state wildlife agency communicators' association--and participated enthusiastically in what we referred to in those days as "resource-use" education, planning programs with other state agencies, the Cooperative Extension Service at Virginia Polytechnic Institute, and the Virginia Division of the Izaak Walton League of America. The Ikes funded a statewide annual wildlife essay contest for youngsters in grades five through twelve. Prizes included trips to Richmond to meet the Governor. Reading those thousands of essays was an education. I'll never forget one which included the phrase, "As Ibid has said,..."! Another frequently quoted expert in the field was "Op Cit".

Depending on how you define your field, my editorship of Virginia Wildlife, Conservation News, and National Wildlife may or may not entitle me to hashmarks on my environmental educator uniform sleeve. Certainly, I thought I was educating people when I taught environmental policy courses at Michigan State University, and when I gave over 200 carefully crafted, formal speeches to as many different lay and professional audiences from one end of this country to the other while I was assistant secretary of agriculture for natural resources and environment. Reproduced widely, those speeches were designed to awaken the public at large, as well as the immediate audience, to the perils of certain chemical pesticides such as 2, 4, 5-T, uncontrolled urban sprawl into prime farmlands, timber mining, stream channelization, and other such threats to our planetary life support systems.

Always in the back of my mind has been the desire to reach as many people as possible with the conservation message, to create a political constituency which will demand its environmental rights and demand that its trustees, who run our public land and resource systems, bear in mind the twin objectives of sustainable development and protection of the quality of human life, which is based in part on beauty and diversity, as they go about managing our lands and other public programs.

So I felt particularly fortunate to be offered a position with the National Audubon Society as the Carter Administration ran down in 1980. No organization has a more distinguished track record over the years in the environmental education field. I began to realize that, I hesitate to say, 32 years ago. I spent the summer of '51 as an employee of National Audubon at its adult ecology camp on the coast of Maine. I was a student assistant, more accurately, a kitchen boy. Some of the broken crockery I hurled from the camp's kitchen door into Muscongus Bay probably still decorates the beach there at low tide.

Carl Buchheister ran the Maine camp then, and became president of National Audubon soon thereafter. Retired, Carl is preparing a history of the Society and recently sent us the first chapters. He emphasizes, on page one of Chapter One, that education historically has been the National Audubon Society's number one mission:

> It cannot be overstated that our founding fathers, and (first Audubon President William) Dutcher in particular, believed education to be the most important purpose of the Society.

So National Audubon is not just for the birds. It is for environmental education. For nearly 80 years now, the Society has enjoyed an excellent reputation for its many educational programs--educational programs with an action focus. We began by alerting the nation to the need for wildlife protection well before the turn of the century, and succeeded so well that the essential bird protection laws were passed early in this century.

There are as many as 12 million prople in the United States today who as children shared an experience that many have said changed their lives: the Audubon Junior Clubs. This program was inaugurated in 1910. For most, this was their first formal introduction to the wonders of the natural world. For some, including Roger Tory Peterson, Allen Cruickshank and Robert Porter Allen, it was the spark that ignited what were to be long and distinguished careers in the environmental field.

The Audubon Junior Club program had three key elements: one, the education of the teacher through Bird Lore Magazine (now Audubon); two, the education of the child through leaflets and by the teacher; and the last was of the greatest psychological value: the child became a member of the Society, an activist for bird protection! With the Audubon Junior Club program, our Society pioneered in an educational activity, entirely novel and untried, and at a time when teaching about birds and conservation was virtually nonexistent anywhere in the country.

In 1936 we established the first of four Audubon summer camps for adults. Audubon Executive Director John Baker said in 1935:

> The Audubon Nature Camp will be established for the production of Nature-study enthusiasts armed with definite project programs for the ensuing year. While the camp will be primarily for teachers, other campers will be welcome. Sustained interest of children in Nature, in the wild birds, mammals, and flowers, and in their preservation depends to a large degree upon the enthusiasm of their teachers.

In 1941 we established the prototype Audubon interpretive nature center at Greenwich, Connecticut. Our Nature Centers Planning Division developed a service program of planning and consultation for other organizations and agencies of government. This division gave important impetus to the nature center movement. Over a period of 15 years the division prepared plans for about 200 community nature centers located from Alaska to the Bahamas and from eastern Canada to California.

The nature centers movement was a successful and far-reaching component of the conservation education movement. National Audubon now administers five nature centers across the country implementing innovative, state of the art environmental education strategies and methods. For example, at Milwaukee, Wisconsin, Schlitz Audubon Center staff developed the Living Lightly in the City curriculum program for urban students and teachers. It focuses on environmental education attitude, value, and skill development. At Dayton, Ohio, our Aullwood Audubon Center's energy education program provides workshops and energy education materials for all interested educators. Many Audubon chapters, such as the local Green Mountain Audubon Society, also maintain excellent nature centers. Every one of our 486 local Audubon chapters has an education committee assisted with program suggestions from our regional office educators. Many chapters have organized their own local youth clubs.

National Audubon's ecology workshop and education camp sessions for both adults and children, nature centers and other sanctuaries, field seminars, international tours, the well-known Audubon film-lecture series, and our conservation information services and publications, directly reach well over 1,280,000 individuals annually with good education--environmental education. You can double that number by including those whose attitudes toward nature are enhanced through reading Audubon magazine. And add the many thousands reached by chapter programs.

We aren't resting on our laurels. We are planning two new ventures, a national youth education program, with a four-color monthly newsletter, and a national television series. Both are designed not just to develop citizen awareness of our environment, but to move these citizens into action.

While seeking funding from foundations and corporations for those two major new programs, we are moving out without delay from our ten multi-state regional offices to our nearly 500 local chapters with updated suggestions and teaching materials for their education committees to use. For example, our Northeast Regional Educator, Bob Moeller, is here to conduct a workshop for you on our new Project EGRET presentation for chapters in New England and New York. (In this case, EGRET is an acronym representing Environmental Goals, Resources, and Educational Techniques.) I hope you'll be able to attend it and the workshop on National Audubon's ecology camps and nature centers, which is to be offered by our Greenwich, Connecticut Audubon Center leaders, Phil Schaeffer and Jean Porter.

Obviously, Audubon has been only one of very many institutional participants in the process of awakening Americans to the beauty of their surroundings and the fact that this beauty and long-term productivity is at serious risk. For example, this Congress has been called in the year that marks the 75th anniversary of the American Nature Study Society and the 30th anniversary of the Conservation Education Association--our two Congress sponsors. Happy birthday to you both, and congratulations on the idea to join forces. You are models for the other splinter groups which together represent all the subdisciplines in this fragmented field, and which would find strength in unity.

United or not, environmental education practitioners, with the assistance of the mass media during the decade of the 1970s in particular, indisputably have made the nation aware of its environment and the importance of protecting it. Your work is paying tremendous dividends.

It has been the combined impact of all of you who have devoted your lives to teaching and administration in the fields of outdoor education, nature education, conservation education, and yes, science education, who have turned public attitudes around. You have pulled all the strands together, added elements related to developing positive environmental attitudes and values, and to citizen political action, combined hard science with emotion-laden wonder, and hit the bullseye with public opinion.

Yes, we, as environmental educators, have been remarkably successful in developing citizen awareness of the environment. All the polls and public opinion surveys show that the public wants environmental protection, even at the expense, for example, of lost jobs or higher electric rates to do the necessary job on acid rain. In another example, public reaction to the scandal at the Environmental Protection Agency forced Reagan Administration changes there. The public wants no retreat from the high environmental quality goals set in legislation in the 1970s.

The evidence?

A Washington Post-ABC News poll conducted in early April of this year found that 55 percent of the 1,500 persons contacted believe the Reagan Administration's EPA is doing more to protect firms than it is to enforce laws; only 18 percent said it was enforcing the laws. More favored strict enforcement of environmental regulations than favored easing those regulations to make energy more affordable.

An impressive 58 percent opposed selling national forest land to private companies, compared to the 11 percent who favored "privatization." Four times as many think Reagan is seeking too much commercial development of parks and wilderness areas as think he's not seeking enough development.

And here are the clinchers: 76 percent believe the laws and regulations to protect the environment are worth the extra cost to the consumer, and 65 percent specifically oppose relaxing air pollution laws affecting automobiles.

You've won the hearts, minds, and apparently the pocketbooks of the American public.

I'm sure you read in late July of this year the rather lame explanation by new EPA Administrator Ruckelshaus that the Reagan Administration initially "misread its mandate" from the public on environmental laws, that it had "confused" the public's wish to improve the way the goals of protecting the environment and public health were achieved with a desire for changing the goals.

The private sector is responding as well. The Chemical Manufacturers Association, for example, has anted up $1 million for a study to identify "what is and what isn't known about the effects of exposure to hazardous waste." This, in response to the near hysteria sweeping the country regarding the ubiquitous nature of unsafely disposed-of chemicals containing dioxins, PCBs and the rest, and the resultant mistrust of the chemical industry, which seems to have concluded that it had better clean up its waste-disposal act.

However, even though we have largely succeeded in our first task of raising citizen awareness of the environment--and even citizen commitment to environmental protection--we can't rest on our laurels. We can't afford to be smug.

Let's take a quick look at the state of our environment in 1983.

- Wildlife and wildlife habitat: The major problem is the same as it always has been--continued loss and degradation of wildlife habitat. Particularly threatened are old-growth forest stands, inland and coastal wetlands, and riparian vegetation along our streams and rivers, an estimated 80 percent of which has already been destroyed.

On agricultural lands there has been extensive clearing of hedgerows, windbreaks and shelterbelts and a widespread abandonment of the enlightened soil conservation practices adopted in the 1930s, leading to vastly increased soil erosion and increased siltation and eutrophication of rivers, streams, lakes and reservoirs that receive run-off from those lands. Conversion of prime farmlands to other uses at the rate of approximately one million acres per year has led to the increasing exploitation of other, marginal lands that once supported wildlife.

Other major threats include accelerated timber sales on the national forests, loss of plant diversity on overgrazed and frequently degraded rangelands, and the continued development of the coastal barrier islands.

- Energy Conservation: The Conservation Foundation's State of the Environment 1982 assessment reported that half of the reduction of energy consumption that was achieved in the United States in 1981 (compared to 1974) can be attributed to the slower rate of economic growth, which shows that we still have a great deal to do on the energy front.

- Pollution and degradation of air, land and water: Even though the environmental decade of the 1970s gave us many new tools, in the form of legislation adopted by Congress, to deal with air, water and land pollution, pesticides, hazardous wastes, and toxic substances, for most of the past three years we have been engaged in fighting a defensive battle, trying to hold the line against the Reagan Administration's attempts to weaken the regulations promulgated under authority of those acts, to prevent the adopting of crippling amendments as each of those acts come up for reauthorization, and to resist the Administration's massive cuts in funding for the U.S. Environment Protection Agency, which has the key role in administering each of these acts.

We have yet to find means of effectively addressing some of the critical underlying issues, such as the development of ecologically sound practices for agricultural lands, practices that will reduce the present enormous rates of soil erosion and its massive contribution to non-point pollution in the run-off waters . . . the extremely high rate of water withdrawals for public water supplies, generation of electricity, and irrigation that by 1975, eight years ago, had reached the rate of 1,972 gallons of water per person per day in the United States . . . the continued overdrafts of groundwater in large portions of the Southwest and the Great Plains . . . the continued contamination of both groundwater and surface water supplies by toxic substances.

- Sale of the public lands: We have been able to enlist the public in opposition to the Reagan Administration's proposals for a massive sell-off of the public lands and waters. Similarly, we have continued our opposition to unsound and environmentally destructive water projects--dam building, inter-basin transfers, stream diversions, and stream channelization. We have won some victories, as in the case of the deauthorization of the Dickey-Lincoln Dams project in Maine, but we are on the verge of losing the battle on other equally-destructive water projects, such as the Garrison Diversion and the Tennessee-Tombigbee Waterway, to name just two of the nation's ecologic disasters-in-the-making.

- Global environmental issues: This topic was so ably reviewed last night by Noel Brown of UNEP. But our global environmental problems are immense and in fact may threaten the long-term stability of the planet's life-support systems. Growth of the human population . . . widespread deforestation, together with the threatened loss, by the turn of the century, of half a million species of flora and fauna and all of the irreplaceable genetic diversity represented in those species . . . widespread pollution of the air, the land, and the water by the same pesticides and industrial chemicals and toxic substances that we are only now learning to control in the developed countries . . . widespread water shortages, loss of topsoil, and decline in the fertility of agricultural lands . . . desertification . . . overharvesting of the world's oceanic fisheries . . . a variety of threats to the atmosphere, including steadily increasing concentrations of CO_2 from man's burning of fossil fuels, possible destruction of the ozone layer that shields all life from certain ionizing radiations, and the long-range transport of air pollutants that we have come to know as the acid rain problem . . . and a widening economic gap between the developed and the developing countries . . . all of these are part of the problem and the challenge to ourselves as environmental educators and as responsible citizens.

So there's much left for us to do, and on a global stage. Our confidence in environmental education broadly defined as an answer to many environmental problems is well-placed. But we will have to go far beyond our present circle of cooperators to get the job done.

I see two kinds of needs I'd like to bring to your attention in the time I have left. One has to do with the scope of your subject matter--the next step, if you will, from awareness to action. The other has to do with your political clout as a profession--your lack of it, rather, and how to get it.

What we do in environmental education should be seen as the natural extension of the civics classes we all took early in our education. Citizen involvement in government should be one of our explicit objectives. We must prepare today's young people to take active roles as adults in our participatory democracy, to make the link between nature and the threats to it embodied in wrongheaded public policies, and to pursue peaceful means of correcting those policies.

In my opinion, the environmental education community is doing a disservice unless it uses examples from the real world and shows linkages between man's actions and their effects on our environment. Students are ready to make the connection--at least at junior high school level--between some kind of resource development activity and the preservation of a healthy ecosystem.

For example, our teachers at the Audubon Camp of the West are expected to talk about USDA Forest Service and Bureau of Land Management planning and management programs for the Wind River Range, not just talk about identification of plants and animals and how the ecosystem works. Similarly, our naturalists at the Schlitz Audubon Center near Milwaukee are not talking just about what is present on the grounds of the center, but go beyond the center's boundaries to show the effect of man's practices on the water quality of Lake Michigan, toxics in waterways, loss of prime farmland in the region, and effects on wildlife.

As to indications of this profession's lack of political clout and its apparent lack of national success in this regard--look at the repeated failures to obtain adequate funding under the federal Environmental Education Act of 1970! Whatever became of this program? Bill Stapp at Ann Arbor and others received some grants in the early years, but I haven't heard of it lately.

The minor status of the environmental education units of our federal land management agencies may be suggested by the fact that, had a personal friend temporarily assigned to the USDA Forest Service's environmental education headquarters team not stopped by to say hello one day, when I was assistant secretary in charge of the agency, I wouldn't have known there was such an activity going on there. I never found myself addressing its status or its funding level, which I suppose disappeared within the aggregate "Recreation" program account before I ever saw the budget.

The federal-grants-to-school-districts program for environmental education demonstration projects and "E.E." curricula design work . . . the federal resource agency interpretive programs . . . the poorly-funded Renewable Resources Extension Act of 1978 . . . these are just examples known to me of what must be a much larger universe of existing and potential publicly funded environmental education efforts at all levels of government which might spring to life if defined and effectively lobbied for.

No public program ever is authorized, nor does it last long once authorized, without a continuing campaign to encourage the responsible elected and appointed officials to start it up and keep it going. That encouragement can run the gamut from letters and visits to campaign contributions and door-to-door vote canvassing to assure re-election of key legislators.

Given that you have associated yourself with one or more professional associations such as the sponsors of this Congress, I urge you to take the next step personally, if you haven't done so already: Join an environmental activist group with a strong lobbying presence in Washington, D.C. and some state capitals, such as Audubon, Sierra Club, or the National Wildlife Federation. Assist its chapter volunteers with their local projects, but don't fail to work through the organization's national policy and priority-setting process as well, to press the group as a whole to speak for enhanced environmental education programs as opportunities such as Department of Education and resource-management agency budget hearings come along both in Washington and in state capitals.

What have the national environmental organizations done to assure communication and coordination among themselves, and occasionally joint representation and a common front on key matters on which they agree? Mechanisms include the Natural Resources Council of America, and more recently an informal quarterly get-together of the chief executive officers of the ten largest national membership environmental groups, known as the Group of Ten for lack of any other name. Various important joint projects are initiated or blessed in this forum.

Other examples include the Washington-based National Association of State Universities and Land Grant Colleges, with its specialized corps of lobbyists which represent the so-called Ag Mafia, and the ad hoc effort conducted a few years ago by the land grant university cooperative extension directors who, dissatisfied with their NASULGC representation, pooled their financial resources and hired their own Washington, D.C. lobbyist to go for additional federal funding. That's what the competition, in a sense, is up to.

Interested in finding out just what such representation might cost?

Suppose you could find one of the major national environmental associations with a strong general interest in environmental education, without enough existing staff resources to cover legislative and administrative actions on your projects, but with room in its Washington office for another person or two. You might be able to buy yourselves one full-time Washington lobbyist for a year by contributing something like $75,000 to that host organization earmarked to cover "your" person's salary, fringes and overhead.

Sound too expensive? Then conduct your fundraising campaign aimed at buying part of one person's time. There are plenty of consultant/lobbyists with environmentalist credentials available for hire in Washington, D.C. these days, usually at law firms.

Of course, before you hire a lobbyist, you'd better agree on what you'd like him or her to try to accomplish. And that's a subject worth an entire day's--or week's--discussion by itself.

But wouldn't it be great to have moved to a consensus on your political objectives and have found a way to develop such a war chest? As the Tbilisi Declaration states, "To make an effective contribution towards improving the environment, educational action must be linked with legislation, policies, measures of control and the decisions that governments may adopt in relation to the human environment." I couldn't have said it better myself.

The National Audubon Society was founded as a citizen action organization and continues to become stronger as a society committed to developing an environmentally literate and politically active citizenry. Audubon is not afraid to state that it is in the business of teaching values, for environmental education is a value-laden process. We use the environment for education, we can educate for the environment, but we cannot lose sight of the serious responsibility of communicating the need to redirect attitudes and behaviors about the environment. And we litigate and lobby. And so can you.

Let's try to leave this Congress with a Burlington Declaration in hand, like the famous Tbilisi Declaration, but more specific at the national level as to how we're going to get from here to there . . . who's responsible . . . and when each step is to happen.

Environmental educators must be active in protecting the environment about which they teach. Unless they make that connection, there may be no environment left to teach about. Environmental politics, after all, is not that nasty and brutish a business--in fact, I and my colleagues rather enjoy participating in it.

Three points in closing:

Education is front-page news today. It's become an important election issue. So has the environment. Piggyback on that momentum. Insist that environmental education planks be part of every candidate's education and environment platforms. Write them, and give them to the candidates for their adoption.

Join forces with other environmental educators and communicators. Form a coalition, a common front. Unity is essential, particularly if you're to be able to reach out helpfully to the global community.

Finally, be assured that environmental education is basic education. What could be more basic than the survival of life-support systems of the planet? The ecosphere is the home we all live in.

The fact that you're all here and working together means you're on your way to success. Good luck, and thank you for your attention.

Re-grounding in Nature:
A Contemporary Perspective of the Evolution of Natural Consciousness

*Bob Samples**

Part I: THE WAYS OF MIND

Section 1, Mind, Beginning explores the concept of "virtual consciousness." Virtual Consciousness is that form of "knowing" that provides an intrinsic regularity to the basic ways the world seems to work.

In Section 2, Models of Mind, a brief excursion is made into brain-mind function. Primary emphasis is given to the interpretive consequences of studying the brain from bottom to top, from front to back, and from side to side.

Section 3 introduces The Holonomic Mind by weaving together findings from the neurosciences, physics, and macrodynamics. The intended outcome is to create a way of looking at mind function as a structurally synchronous consequence of the way the universe functions.

Section 4, Open Mind, poses the notion that our traditional view of the brain as an organ has created a rather closed-system perception about mind function. The holonomic model extends the interpretation of mind function so that what has been traditionally called para-normal becomes only a variation of that which the brain normally performs.

Section 5, Holonomy, a summary, elaborates on the implications of simultaneity and unity between the brain/mind system and natural/planetary systems.

Part II: CULTURE AND MIND

A change of focus. Whereas Part One was an exploration of some theoretical and scientific postures regarding the mind, this next portion provides a new background. This new background will be expressed through the medium of people . . . human perspectives as seen against the larger tapestry of culture.

Section 6, Toward a Holonomic Culture, is an essay on culture. This perspective is richly endowed by Charles Reich, an historian who wrote of cultural evolution in a somewhat ecological sense, although he did not use the term. As I interpret Reich, he paints a broad-brush portrait of the evolution of American technological society.

**Mr. Samples is author of "Mind of Our Mother," published by Addison-Wesley Co., 1981, from which these notes are abstracted. They provided the basis for the commentary he used with his slide presentation at the Congress. He resides at Hawksong, Boulder, CO.*

Section 7, Holonomy and the Person, extracts the person out of the fabric of culture and examines the individual personality. The perspectives of O.J. Harvey are central. Harvey sees individual people and their personalities as exemplars of the elements of society to which they express allegiance. Harvey's work clearly provides detail as to how individuals may be both the sculptors and sculptures of the social ecology.

In Section 8, Evolution: the Person and the Culture, we explore the mechanisms of evolution, including a description of how the process creates options through which individuals express their roles in a culture. Social or cultural consciousness establishes human ecologies. . .yet the collective we know to be society is but an expression of an aggregate of individuals. In a sense, an individual may enter the evolutionary process at will. . .but only as an individual. Human beings have the capacity to give themselves consciously to evolution.

Part III: VISION BORN WITHIN

Inherent within us is a genetic tendency toward survival. Section 9, The Way of Life, explores the implications and consequences of these inborn tendencies. This genetically endowed form of survival is not one of tooth and claw. . .not one of "closed system" thinking. Rather, it is one of open systems. It will require wisdom, openness, and a sense of harmonic blending.

Section 10, Toward a Blending, begins with a synthesis of the "way of life" and holonomy, and it continues to place this synthesis on the matrix of consciousness. It does so by exploring the notion that it is the mind which will inevitably recognize its "natural" harmony and blend those with cultural choices.

Section 11, Whisperings Within, creates a reference model for what many have called the transformation. I present the argument that only through honoring those innate human tendencies toward affiliation, empathy, and autonomy - can transformation and survival be insured. The distinction between true autonomy and the "narcissism" spoken to by closed-system critics, is made. This section ends with a descriptive model of the elements of the paradigm shift taking place in contemporary society. This final synthesis is drawn from history, biology, and psychology.

Part IV: WORLDS IN VIEW

As vital as are the implications drawn from historical, biological, and psychological evolution, another even more exciting issue emerges. This emergent issue is the nature of the evolution of consciousness. Section 12 Mind Evolving, extends the premises of Section 1 [illegible] Mind, Beginning. Consciousness is born of the physical stuff of the universe, that patterned form of energy we call matter. Matter in its simplest forms possesses innate tendencies to configure with other forms. Each configuration follows in form an expression of this consciousness. The evolution of consciousness is thus not bound to the time-ordered sequence of events inherent in classical, historical explanations of social and biological evolution. At first, the process is virtual or non-reflective; later, its complexity results in reflective consciousness.

Section 13, East/West: North/South, is an explanation of how different cultures have created forms of consciousness consistent with their chosen patterns of mind function. The most obvious, and by far the most popular, distinction lies in the comparisons between Eastern and Western consciousness. These are examined briefly, and then what is considered a far more important distinction is made. . .that between Northern and Southern consciousness. Northern hemisphere consciousness includes both Eastern and Western traditions and has historically weaned consciousness away from nature and deeper into cultural vision. Southern hemisphere consciousness has invested far less in culture and instead has maintained the centrality of nature in all its institutions.

Section 14, Nana I Ke Kumu. . .Look to the Source, celebrates the possibilities of blending the technocratic consciousness of the North with the more planetary vision of the South. Distinction is again made between religiosity and spirituality, with spirituality cast as the primary medium through which a holonomic, evolutionary world view may be created.

The Environment Today — The Correspondent's Perspective

*Bettina Gregory**

I now work in Washington, that most amusing city where James Watt defined hard, acid rock as "The Beach Boys," and other follies. When I got to Washington several years ago, I really didn't know what Government regulation was, and this is the topic I cover. Now, as you all know, Ronald Reagan is President, and campaigned on a platform of cutting taxes, balancing the budget, raising defense spending, and cutting government red-tape. In retrospect, we can all acknowledge, whatever your political persuasion, anyboty who can do all of those things at the same time should not be running for president - he should be elected to be God! We now see in hindsight that this is not possible to do at the same time, but you all recall that Reagan campaigned successfully against the OSHA inspector, and against the image that somehow we in the United States are bound up in this regulatory red-tape which is too expensive, and is not really doing the job.

Let's pause for a moment and go back and look at the development of the environmental movement in this country. It started in the era of the sixties - each era has its own special political character. The sixties were, of course, the era of protest. Civil rights, the anti-war movement, and during that era was spawned the popular consciousness for the environmental movement. People started protesting against those dirty old polluters. Ralph Nader had started late in the fifties, and by now the country was focusing its attention on what could and should be done, within the law, to prevent environmental pollution. As we moved into the seventies - Tom Wolf dubbed the seventies the "me" decade - we all came as a nation very much more reflective. We began to look into the parts of our psyches as to where we were going and what was really important for me - what did I really want out of my life. And in that respect the environmental movement gained momentum. It's somewhat ironic now; as you all know, the EPA was founded by President Nixon. I, of course, am a non-political person, and cannot make any comment! But the fact that Republican administrations, both Presidents Nixon and Ford, tried to encapsulate and use that environmental momentum to form government agencies whose job it was to oversee and administer Administration Policy on the environment, and to encourage laws which would see that the environment would not be polluted, that we would begin cleaning up and generally protect the health and safety of the American people. That's a very noble goal. We became the leaders in the world in the environmental movement. But as we moved on into the era of the eighties, we have moved into a very conservative (with a small "c"), and I mean conservative politically, era. Generally speaking, the American people felt that the government was too big, taxes are too high, and basically we're spending too much and we're not getting enough in the way of results.

When history is written, I'm sure President Carter will be remembered as the most conservative Democratic president we have ever had. He decontrolled the price of oil. He was the first one who talked about zero-based budgeting,

---

**Ms Gregory is an ABC Television Correspondent.*

which Ronald Reagan picked up in trying to decrease the Federal deficit, because Carter, as we turned into the decade of the eighties, was well aware of this national perception that the Government had expanded beyond belief, and it was simply time to cut back. As we are now heading toward the middle of this decade, we have to look at it from this perspective: Ronald Reagan, as you know, came into office to try to get government regulators off the backs of the people. This was not only his stated goal, he has gone clearly about the duties of doing this. Now, how have we in the media covered this?

The environmental movement really started as a protest movement. It was really easy to cover: there were people marching up and down carrying signs protesting about this or that site, and generating, first on the local level and then on the national level, the consciousness of what needed to be done. There are groups that still do this; for example, Greenpeace, which got an awful lot of publicity recently in their whaling mission into Soviet waters. But they are now the relic of this movement which started in the sixties, and not really the vanguard any more. What they are doing is reminiscent of what used to be, and it is unusual rather than the norm. So when the environmental movement started, it was really easy to cover it. We had people protesting and we in the media, our job was to go to the government, to go to private industries and say, "Hey, these people are complaining about this problem. What are you going to do about it?" With enough pressure and enough people agitating for something to be done years ago, something was done.

The problem is that we now have a regulatory atmosphere which is extremely complicated. One of the problems I have as a correspondent is that the regulations are almost incomprehensible to the general public. You as educators are probably equally perplexed about what does the law do; there's a legitimate argument to be made against regulation because the argument we made with the law is not really doing what we intended it to do. And we have to look at that. I think particularly, for example, of RECRA, the Resource Conservation and Recovery Act. That was a Carter Administration program, and I would like to stand up here and applaud everything the Carter Administration did in the environmental field, but I can't, because the law has loopholes you could drive a truck through; and they do - the trucks are full of hazardous waste! And that law is still on the books. They have not defined "carcinogens" under the law. You all remember that it wasn't until ordered to by the courts that the Carter Administration actually came up with regulations which would implement the ongoing dumping of hazardous waste. The only reason RECRA was passed was because of public protest. It had to do with a place called Love Canal. You all remember what happened there; the enormous publicity about abandoned dump sites. And then the government began to feel "you know, we really have to do something about controlling abandoned sites." As you all know, the Superfund legislation was passed - I'll have more to say about that in a moment. The point I would like to leave with you is that right now the regulations are so complex it is difficult for experts to understand what indeed they achieve and they don't achieve. It's not so simple any more, as a reporter or educator or anyone else, to simply say "things are black and white." It would be much easier if we could simply say that this is a good law; this is a bad law. Right now we are faced with the possible reauthorization of the Clean Air Act. Congress, in its wisdom, has made a lot of noise about it, but hasn't really done anything about it. The Administration, in its wisdom, tossed it right over to Congress, coming out in the middle of last year with a set of principles about what it is that they wanted to do, and at the moment we have a stalemate in this and many other environmental areas. There are some good people in Washington, no matter what you believe, who are trying within the government to accomplish the purpose of good environmental regulation. It is very complicated to understand and even more complicated to unravel. At the network on the evening news show we have thirty minutes - well, we really have twenty-two minutes of usable time when you take away all the commercials. The average story that I would do on the evening news broadcase is about a minute/fifteen to a minute/thirty. Have you ever tried to explain something like the EPA's lead-content rules in a minute/fifteen? It is indeed a challenge. This brings me to my next point.

At the networks, in order to cover environmental regulations, the single biggest obstacle we have, since we are a visual medium, we need the pictures! I was telling some friends I was once privileged to do a story five or six years ago on the Adirondacks about acid rain. Well, I had to sit in that really ugly area in September and October, with all those ugly trees, waiting for it to rain into certain lakes. It took days! I somehow suffered it through, and we got the story on. It is difficult to illustrate general environmental stories - the one that comes to mind is the Clean Air Act. Whenever I want to do a story about the clean air - well how in heck do you illustrate it? Well, what if it's not smoggy that day in L.A.? We have to plan to have the footage available should some general story break. Now, if we are covering a particular story about a particular dump, a particular environmental problem, that's easy to illustrate. But when something breaks at the last moment a lot depends on how much of the footage we can get. I'm very often indebted to environmental groups who, while the government will not provide footage, they have their own. I think of one example. When I was covering radioactive waste dumping in the oceans, an environmental group provided us with footage which showed the barrels, some of which were leaking, and they even had pictures of aquatic life that had been mutated as a result of this dumping off the Farallon Islands in California. This makes it extremely easy to do the story and to illustrate what it is that we're talking about. Whenever I have to cover groundwater policy, how am I going to illustrate it? Show running streams, hoping that the audience will, with all that running water on the screen, stay for the next commercial break to leave the room? There are enormous difficulties . . .? You begin to see what I'm talking about. Waste dumps are frequently inaccessible, and when a story breaks on one of these cases, it sometimes takes us a couple of days because it will be in some remote area where we can't readily get pictures even through our affiliates. What we as a network have to try to do is to be prepared, and try to shoot these things in advance, so that when the government drops a little nubbin on us in a policy or non-policy or withdrawal of a policy, or whatever that particular story happens to be, we are able to cover it.

The third difficulty that we all have is determining what the story is. When you are covering agencies like the EPA, it is sort of an amorphous mass, and things sort of evolve and its like the flow and ebb of the tide, and its very difficult to catch a snap-shot of what is happening at any given time. For example, several months before the EPA Superfund scandal erupted, somebody leaked me what was to be the EPA's groundwater policy. It was a finished announcement which they were going to make. We wanted to get the footage, so I said, give me the policy, I will go and see what I can do to illustrate it, because I was going to have a difficult time trying to illustrate a policy without thinking about what sort of shooting we could do. The policy was going to be announced at a news conference; the news conference was cancelled - and that's the last I ever heard of it! The groundwater policy we've been waiting for for years is still floating around in that agency somewhere, in never-never land, and of course nothing can be decided at the moment because the new administrator, Mr. Ruckleshaus, has to have time to review everything that's going on. It's very difficult at any given moment to determine exactly what the story is. This brings me to the whole idea of enforcement.

If you can do one thing as opinion leaders, as educators, to make young people of this country more aware, you must make them aware of the difference between simply having an environmental law on the books and enforcing it. I don't know how many of you remember when Mrs. Burford was accused of telling a gasoline refiner in New Mexico "don't worry about the regulations - we're not going to enforce them anyway." Budget cutbacks in this administration are always in the enforcement area. We must all become more sophisticated in the way we look at and cover and teach these issues, to look not only at what law is being passed, but how it is being enforced. Whatever the rules are, we have to look at the resources available for the endorcement of them. This is what administrations never talk about. They talk about what they have achieved in the way of environmental law, but we have to look at the money devoted to enforcement. Very few people go through the budget to determine what it is. Which is why you, as educators, bear the primary responsibility for young people becoming more and more sensitive to the environment, to conservation, to what is happening to all of our natural resources, because these issues are not going to go away. The environment is a political issue. It will be a political issue in the 1984 campaign. Education is also an issue. The Republicans, in my opinion, underestimated the value of the environmentalists. They saw that there was no real environmental protest movement - everything seemed to be going along pretty well. What they forgot is that it was basically the upper middle class and the Republicans living in those nice suburban neighborhoods, who wanted to preserve what they have, who began to worry about "is the drinking water safe? Are they going to clean up the hazardous waste site? Is it going to leach into our drinking water supplies and kill us?"

The other problem I have as a correspondent is the "carcinogen-of-the-week" phenomenon. My editors say "so what else is new? What gives us cancer today?" We have as a nation become somewhat blase about the "carcinogen-of-the-week" phenomenon, and this applies most particularly to the environment, because the environment is not going to poison or kill us today; it's going to be over a long period of time. We've got to plan ahead, and Washington is not really known for its foresight. They think ahead as far as the next election. But, Washington responds to community pressure! The one thing that you as citizens, educators, and opinion leaders can do is to organize locally if you have environmental concerns. There is a tremendous resurgence at the grassroots level of environmental concern in the eighties, with every good reason. There are hazardous waste dumps in every Congressional district. If you are involved with a group living in one of those districts, write your Congress-people. They will respond. They only respond to the ones that scream the loudest. In John Naisbit's book "Megatrends," which I commend to you most highly, you will see that he talks about decentralization that we are all facing, and that efforts of government are going to have to take place, not at the national level, but at the local and state level, where smaller groups who are organized, who have something to say about the environment and what's going on, can make a much bigger difference. It is very exciting when we see big environmental stories like Times Beach. The State of Missouri knew about the situation for years, but it wasn't until local people got organized, got angry, started protesting, that the situation with the dioxin hit the headlines.

To sum up: you as educators, as opinion leaders, have the brunt of the responsibility. If we are to have environmental consciousness in the eighties; and I believe groundwater, and the availability of fresh water, is going to become the environmental issue of the eighties, and there is precious little being done right now by the Congress or Administration on this issue - it is up to us as citizens, it is up to the young people to be educated about what it means that water isn't automatically going to be there, safe and pure to drink. The bottom line is the total body burden. If we breathe air that is polluted, if we drink water that has contaminants, if we are exposed to carcinogens in the environment, more of us will pay the price; we will simply die earlier. There is a government report put out recently which traces most causes of cancer to the environment. Many of these chemicals are not regulated at all. OSHA regulations are not being issued. Only a small number of people are concerned - unions mainly. Recently, the National Petroleum Institute decided voluntarily to have gas dealers put up warning signs at the pump "this could be hazardous to your health." Industry is beginning to make some moves. We will not question their motives, because obviously if they warn people they may not have as much liability in case they are ever sued. But government is really not doing it, and this is where you can all come in. We in the media only convey and report what is happening; we do not make the news. The more conscious you can make young people of the need to conserve and preserve what we have - we have lost our position as the premier environmentalists in the world. Progress is coming very slowly now, which is why I feel that in this decade there's going to be a great renewal and revival of environmental concern. It is you who have the primary responsibility of achieving it. Thank you.

Environmental and Educational Quality: A Time for Action

S. David Freeman*

I understand that many of you are here to hammer out a national policy for environmental education. You are considering a number of specific recommendations that seem useful. But I'd like to step back and explore with you a few fundamental ideas about environmental education, particularly as they relate to what we are doing at TVA and what we all might do as concerned environmentalists.

To build a society and economy that will preserve the environment, we need first to build the environmental knowledge and sensitivity of our people. One depends on the other. Just as no democracy can expect to remain free in a state of ignorance, we cannot expect to maintain a wholesome environment unless our people are environmentally informed.

The acid rain problem is a perfect example of how a little bit of knowledge mixed with a lot of ignorance can lead to big trouble. When we first started controlling air pollution from power plants and large industrial facilities what we knew--or thought we knew--took us down the wrong trail. Back then, tall stacks were considered to be a key part of the air quality solution. They did alleviate the local air pollution problem, but allowed large amounts of pollution to flow into the upper atmosphere. The sulfur and nitrogen was blown away--out of sight and out of mind. Now we know all too well that what goes up as emissions of sulfur and nitrogen comes down as acid rain.

Five years ago TVA was the nation's largest single source of sulfur dioxide pollution, discharging 2.4 million tons each year. TVA has cut this in half, reducing the atmosphere's sulfur dioxide burden by 1.2 million tons annually. This reduction was done at a cost that caused rates to increase between six and eight percent.

We have gone from being the Nation's single worst air polluter to leading the industry in the reduction of pollution. We are proof that it can be done, and done without an unbearable strain on rates. And we are prepared to make further reductions as part of a national effort.

At TVA we are teaching with our actions as well as our words. We believe TVA has one of the Nation's finest programs in environmental education, but it would be a massive exercise in hypocrisy if TVA were still sending needless tons of pollutants into the air every day.

We demonstrate our commitment to the environment through the educational programs we sponsor and through our efforts to serve as an environmental example within the Tennessee Valley. Since 1978, TVA's environmental record includes the following accomplishments:

-- We have made conservation and the use of renewable sources of energy a principal source of power.

---

*Mr. Freeman is Director, Tennessee Valley Authority, Knoxville, TN.

-- Through our conservation investments, TVA has built the power equivalent of one large power plant at a small fraction of the cost.

-- We have halted the construction of eight nuclear power plants, and have no plans to build new ones.

-- We have initiated projects to reduce dissolved oxygen depletion in the waters below TVA dams. This is a serious water quality problem below most dams throughout the country. TVA has recognized this problem and is perfecting a solution.

-- We have helped farmers reduce soil erosion by demonstrating such soil-conserving techniques as no-till planting, which is now being used on more than 250,000 acres in west Tennessee and Alabama.

-- We have halted the construction of new dams, stopped environmentally destructive stream channelization projects, and acquired sites along the remaining streams in the Valley for river recreation.

-- We have taken a public stand in favor of the reenactment of the Clean Air Act and the Clean Water Act, without any weakening amendments, and are actively seeking legislation controlling power plant emissions to reduce the problem of acid rain.

TVA in recent years has become a major force in the Valley for environmental protection and enhancement. As we see it, our environmental initiatives are a necessary part of teaching by example. There is a certain truth to the old saying, "Actions speak louder than words."

But words and the knowledge they bring are important, too. Recognizing the importance of environmental education, TVA is sponsoring a variety of educational programs for students, teachers, and the general public. We are investing about $500,000 this year in support of six university-based centers for environmental and energy education. Each center provides teacher training, conducts research on environmental education, and renders service to local school districts. Their programs reach almost three quarters of a million students throughout the Valley.

TVA's Land Between The Lakes (LBL) offers another good example of our environmental education efforts. This 170,000-acre site located in western Kentucky was developed twenty years ago by TVA as a national demonstration project in outdoor recreation, environmental education, and resource management. It draws about two million visitors a year. It's one of our best kept secrets but we are now engaged in an effort to put LBL on the map.

Educational programs at LBL are delivered through four interpretive centers designed to teach people about themselves, their history, and their environment while they are having fun. LBL's Homeplace-1850 is a living history farm replicating the lifestyle and farming practices of a rural family in the first part of the 19th century. A planetarium brings visitors back into the present and launches them into the future emphasizing the concept of Spaceship Earth.

LBL's Environmental Education Center offers summer training programs for teachers. The teachers camp at the Center for a week and use its resources and staff in developing environmental materials and programs that can be taken back to their local schools. Additionally, those teachers who complete the camp can bring their students to the Center during the next school year and use their materials there. This year over 7,500 students and teachers from 14 states will participate in the Center's programs.

Environmental programs at LBL reach across the country, particularly through the involvement of colleges and universities. For instance, an internship program giving college students work experience as well as environmental training draws students from across the country, and from five other nations. Several university consortia are cosponsored by LBL, such as the consortium on environmental interpretive centers which involves Michigan State University, Ohio State University, Kansas State University, Pennsylvania State University, and Texas A&M. Helping these fine universities keep their programs and staff up-to-date helps students throughout America.

I mention what TVA has done through its words and actions in part because we are proud of such efforts. Additionally, they illustrate the positive accomplishments of a governmental agency committed to the wise use and protection of our natural resources. We are responding to environmental needs on a regional basis, and clearly see the need for similar work on the national level.

A concerted federal effort in environmental education is called for. A basic need is to learn more about the environment through research and development. We are still plagued by ignorance on most environmental issues. And we can develop better technical fixes. But it is equally important that we disseminate knowledge about the environment through a variety of educational initiatives.

We know that the federal government--through its actions and words--needs to be a leader in this effort. People will, of course, squabble over where such a federal effort should be bureaucratically located. Should it be assigned to an existing agency such as the Environmental Protection Agency, or should some new office or agency be created? Let me say that getting the job done is more important than where the office is or whose name is on the door.

Today there is strong support for environmental protection. But protection without education is just half the formula for the environmental quality.

For too long we have built our environmental policies, and educational programs as well, on fear--fear of depletion and fear of ruin. Fear was effective in waking up many Americans from an environmental slumber because the fears had a solid foundation. In 1970 we were headed toward real disasters from dirty air, strip mining, rivers that were open sewers, and the like. As I said, there are still a number of real problems that cry out for action--acid rain, toxic chemicals, and soil erosion are examples. But fear alone is not enough. It was once useful, but a strong foundation of knowledge is needed for the future.

In the past, environmental policies and learning programs sprung up all too frequently in reaction to disasters. The Three-Mile Island incident generated new policies on nuclear power plants. Love Canal stirred concern over toxic dumps. Dead lakes are stimulating various proposals to control acid rain. Our policies and programs became a parade of reactions, and our educational programs rested on a foundation of fear and disaster.

We must now strive to develop a positive environmental ethic--an awareness that a wholesome environment is a necessary and desirable part of our life, an appreciation for the beauty and sophistication of nature, and a commitment to its protection. I believe people instinctively know and appreciate the value of really clean air and water. That's the reason they come to the mountains on vacation.

The fear of disaster has to be dismantled as the centerpiece of our environmental efforts and be replaced with the joy of breathing really clean air, swimming in really clean water, and seeing a green cover on the land. This can become the driving force for a nation of environmentalists.

Part of this ethic requires that we work together in determining a desirable environmental and economic future, and in specifying concrete steps needed to secure its realization. In doing so, we will find ourselves anticipating and planning together based on what is desired, rather than reacting to the brush fires of the past. Here, again, we can see the need for increased R&D and more forward-looking educational programs.

Shifting from a foundation of fear and reaction to a foundation of anticipation will require considerable thought and public education. There is no better time than now to begin this shift, and there is no better group than this one to carry it out.

Essential to this effort is a recognition of the connection between environmental quality and educational quality. This connection has two dimensions. First, the quality of our environment depends, in part, on the quality of our programs in environmental education. Without a sound knowledge and appreciation of the natural world, we can't expect the general public to develop a positive environmental ethic. This part of the connection is fairly clear.

But more fundamentally, we need to be concerned about the quality of our educational systems in general. The schools are an essential vehicle for our particular programs in environmental education. We made sure those programs were in good shape, but neglected the health of the system as a whole. It's time now to realize that a person's ability to grasp and use environmental knowledge is not separate from their general ability to think.

Unless our schools stress excellence and instill the joy of learning in students, they are not going to be interested in environmental education, much less knowledgeable. The failures in math and science education are in a very real way failures in environmental education.

We cannot afford to continue narrow-mindedness and self-centeredness. There is no way that environmental education can really improve if our school systems don't improve. Simply put, our environment will never be in better shape than the minds of our people.

Environmentalists face a challenging future. That future will be bright if they roll up their sleeves and help improve the quality of educational programs in general, if they help build a positive environmental ethic, and if they help all of us teach with our actions as well as our words. Providing all that help will require a lot of hard work--building a future usually does.

TVA stands ready to join with those willing to tackle these difficult tasks. We're committed to the environment and the people of the Tennessee Valley. We've built enough dams and power plants for the time being, and now we are out to build a bright future, too--a future based on the development and wise use of our resources, especially our most important resource; our human resource.

Conservation Education — Alive and Growing

*Peter C. Myers**

We look back on the conservation movement and the environmental movement, and you can look back to the beginning of our country when people came here - and that's what's caused our problems, is people. That's what continues to cause our problems - people pressure on what we've got out there. We were driving over the Vermont landscape this morning, looking at the people building their homes on this pretty good farm ground, where you could have dairy cattle and you could raise corn, but if I lived in Burlington, Vermont, I'd guarantee you I'd be out there in a house, too. You can't criticize the people, but that's what we deal with in conservation and environmental education.

When we first went to Washington, Mary and I took our kids around to see all the monuments - Washington Monument and Lincoln Memorial - and we got to Tom Jefferson's monument. Have you ever read all the sayings up in the top of that monument? It's pretty interesting the things Tom thought about. One that's not up there, but that he did say, which is pretty prophetic, is that the wealth of our nation is measured by the depth of our topsoil. There are some places in our country not far from here where we're down to six to eight inches of topsoil - crop production land. For me to tell you that we're not going to be able to feed people within the next fifty years is something I can't tell you, because there's other land we can bring into production. This agricultural production plant we have in this country is tremendous. Even though we're in the midst of a drought right now, we can be right back into tremendous surpluses in a few more years. The fact is, we've got a year and a half's crops sitting in the bins right now, so we don't have that problem. Part of our problem is the fact that we are able to produce these crops.

What we are trying to do in SCS is turn these farmers to methods of farming where they can produce these crops and still hang on to that valuable topsoil. When you get down to six inches of topsoil you've got roots that are down in subsoil, and you're not producing that good of a crop. We have areas that are in serious trouble.

What's that got to do with environmental and conservation education? To me, soil conservation is not a "today" thing. Education is not a "today" thing - it's for tomorrow and tomorrow and tomorrow. It's still very vital, and it's going to continue to be vital, and that's why I'm so enthused about this conference. Here's a place where you can sit down and communicate. No two groups are going to want the same things; they'll go at it a little differently. We in our agency have got to respond to some of the politicians once in a while - we try not to; we try to be independent - but we're still an agency that works for USDA and which works for the Administration. I've been given a lot of latitude by Secretary Block, which is one of the reasons I took the job, because I'm not too much of a "yes" man. He lets us run the agency, which is not too much of a problem because he and I think alike.

**Mr. Myers is Chief, Soil Conservation Service, USDA, Washington, DC.*

In soil conservation we're moving very strongly in education - we believe in working with groups like the boy scouts and girl scouts, and recently we've begun working with one of the bigger women's groups in the country. We think it's very important to work with these volunteer groups, not to get more money for SCS so we can hire more people, but because we can have more people involved in the problems in our country, whether it be wildlife conservation or soil conservation. We believe in working with the state agencies, like the Missouri Conservation Department, which has one of the best conservation education programs in the country. Missouri has an advantage because of its eighth-of-a-cent sales tax, but that didn't happen automatically. It happened because people were concerned enough about conservation - not only wildlife, but soil conservation - that they worked hard and convinced fifty-one percent of the people of Missouri that they should pay one eighth of one percent - and we have to fight that battle every year, because they want to take that away from us, and use it for sewers in St. Louis and Kansas City.

We can gather in conferences like this and commisserate, but if we don't go home and do something about it, we're not going to accomplish anything. We endeavor in the SCS to try to accomplish things. We try to present information to our clientele and we work with urban as well as rural people. There are many things that are relevant in soil conservation to urban areas - it's not just erosion of farmland or water flooding. We, all of us, need to aim for positive, personal decisions based on fact. Sometimes we forget and get so emotional that we don't base our things on fact. A good case in point now is the use of herbicides on conservation tillage and no-till.

No-till is probably the newest and most exciting thing that has come along in soil conservation in quite a while. We've had the knowledge about this for about ten years, but it requires weed control, as does all farming. It requires herbicides. Most normal farming operations use herbicides, but it takes one more herbicide in no-till, and that's a "burn-down" herbicide to kill the weeds that are present when you plant the crop, because no-till involves planting the crop right back in what's ever on the land, whether it's growing weeds, growing grass, growing cornstalks, whatever. I think one of the things we're fighting is the concept that all herbicides are "Agent Orange," and that's not true. There are a lot of good agricultural herbicides. Most break down in about six weeks. All herbicides basically will adhere to the ground, so if you can keep the soil in place and keep the soil out of the water, you can keep the herbicides out of the water. Paraquat is one of our basic burn-down herbicides. It's been getting a lot of bad publicity because of its use on marijuana, but people don't have to smoke that stuff when it's been sprayed with herbicide, it's their choice. It is an effective way to kill marijuana. If people would leave marijuana alone, we wouldn't have any problems. That's easier said than done, but here we've got a good herbicide in our arsenal to use in soil conservation that people are fussing about. It's the same thing with Agent Orange, which is basically 2.4.5-T, which is outlawed in this country.

Farmers have to have licenses to purchase herbicides all over the U.S. now - a fact most people don't know. But we know that no-till holds soil in place, so we've got an educational thing that we have to work on, to inform the general public (1) how important no-till is and (2) that all herbicides are not Agent Orange! We've got some educating to do. It's part of our problem.

Some of our professionals in SCS ask "why do we spend $200,000 publishing a book called "Conserving Soil" for 6 through 9th graders, for the teachers to use? Why aren't we out there just working with farmers on the land?" We think that educating future generations is pretty important. We know that schools are places where information is transferred and lifelong attitudes are formed. Young minds are looking for things that are relevant. We learn in schools that people have different values and needs and abilities, and that we can use all of them in this country. The education audience is by far the largest audience in the country - 25% of our people are directly involved in education. So why are we interested in conservation education? Why not let the Lord take care of things (and He generally does)? When you look at past civilizations, you'll realize that our natural resources are the basis of our civilization. All you have to do is look around right here in Vermont, and then go to a country like China, where there are no trees left, and the rivers run dirt-brown because the people have used all the vegetation. Look at Africa or South America, where they're plowing up the jungle. We're sending technicians in to try to hold that resource in place. We can squander our resource base in this country, too. We have to have citizens that understand the resource and the human relationship. This people pressure is a very real thing. SCS has a long history of conservation education. There was Hugh Hammond Bennett, a real evangelist for soil conservation, who came in during the dust-bowl days, when people could visibly see the soil blowing away. For those who don't know, we're setting outselves up to experience that again in the high plains, where there's a lot of bare land ready to blow if we have a couple of dry years and a lot of wind. That's a matter of fact.

We have a long-standing tie-in with schools, working with them on presentations, workshops, supplying materials. Our District Conservationists and our soil technicians work with teachers and in teacher workshops. But our real strength remains in personal contacts. We have a relationship with Conservation Districts, which is a separate unit of local government with supervisors elected on a local basis, with memoranda of agreement, and that is where a lot of our strength comes from in SCS - these local units that we work with cooperatively. We've had educational efforts that have tried to provide a factual view of resource issues. We cooperate whenever requested to help provide teachers with materials they can teach their young people. We don't try to preach SCS or government philosophy. We aim to get people together and help them understand resources and help them act with knowledge in the voting booth and on the land. Not everybody is going to work on the land, not everyone is going to work in education, but everyone in this country has the opportunity to be a voter. It's just as important to educate the people that will never get involved directly in environmental work as anybody else.

What can you expect from SCS in the years ahead? We're going to see more educational work with youth and citizens groups. This is the avenue to get the story across to the general public. We hope to provide materials that will really aid educators in the need to conserve soil. If there's a need, we are going to try and fill it. We're committed to conservation and environmental education, including wildlife, soil, you name it.

We think it's important and all interrelated. On the local and state level we would hope to have increased efforts with colleges and universities, and closer ties with local and regional educational groups. We want to support your efforts, and the efforts of other groups like the National Association of Conservation Districts and the SCSA. We have major natural resource problems in this country. We do have accelerated soil erosion. We're farming land now that we didn't farm ten or twelve years ago. That's the real problem. We're facing the conversion of prime farm land from livestock to field crops, and from farm to non-farm use - very important in the northeast.

We're facing problems with the nation's water, especially quality. Underground water quality is something that enough people are not looking at - a critical issue. In Arkansas irrigation water is too salty, in spite of the high rainfall there. You read every day about flooding problems, water shortages, animal and solid waste management, to say nothing of endangered animal and plant species and loss of habitats. People pressure is causing all of this. We can work together to release this people pressure, or direct it in the right directions. We all have a brain that the Lord gave us, and I think we can use it. We do see major changes - conservation tillage and no-till is cost effective. All we have to do is convince farmers that it's better to see crop residues on top of the ground, than it is to see bare dirt. It's hard to change old habits. We think computers are here to stay, and we're going to use them more and more. We're going to use satellites to take our resource inventories within ten years. We're going to *know* what's going on out there. We in SCS intend to use this technology. We use electronic snow-measuring instruments in the West already, helpful in the prediction of the floods this past year. We're just scratching the surface of space-age technology. We're going to see a switch from classroom to open-space; more team-teaching; use of computers as teaching tools. Back to basics - and what's more basic than soil and water?

I want to encourage you to push ahead with what you're doing here and what you're doing back home with conservation and environmental education. Don't become discouraged by the problems that education faces today. Shrinking funds, lower enrollments, un-motivated students - I know you face that. I guess I've always felt that if you took a positive enough attitude about something, and look forward instead of looking back, you could get something done. Work with the resources you have. The greatest strength of our educational system is at the local level - not in Washington. That's the basis of what we're trying to do in SCS, and I would hope that this is the way you would look at educational efforts. We have our local Districts, our local teachers, our District conservationists at the local level. This is where the action is. We intend to focus our direction, not on great policies and edicts out of Washington or even from Burlington! It's going to be out there working with the farmers, convincing them that what they're doing will pay and will conserve soil at the same time. So don't depend on some higher powers or some great universal grant, but go out and work at it. You'd be surprised how much local people get involved, with both money and time, if you can motivate them.

You're the motivators! So, it's really up to you. I would hope you would call on SCS to help. Look them up in the phone book. We've got soil conservation experts in every rural county in the nation - 3000 of them. We're ready and willing to help people who are committed to conservation and environmental work. We have a real challenge ahead of us. We live in the Garden of Eden in the United States - the best country in the world. We have a situation where God's given us the soil and the climate and water for an abundant life from now on if we take care of it. Thank you.

Interest Group: Citizen Organizations

Citizen Interest Group Participation

*Judith M. Schultz**

Most change emanates from the grass roots, although there are exceptions. Certainly, the environmental movement exemplifies such change. This sort of change represents amplification of individualized concern and action, or shift from individual to group or organization. Warren Bennis, former President of the Univeristy of Cincinnati, employed the term "change agent." Environmentalists, and now more recently environmental educators, serve as "change agents" and present a challenge both to the federal government and to the society at large.

Individuals soon realize a need to amplify individual efforts and so form or act through organizations or interest groups. I can cite several examples. First, I serve on the Environmental Advisory Council to the City of Cincinnati. We serve as the "environmental conscience" to the city. Our task is in making recommendations to city council. The range of our assignments is vast, from conducting month-long hearings on our 97%-completed Zimmer nuclear facility, to evaluating possible accumulation of dioxin in regenerated activated carbon in our newly proposed municipal drinking water purification process, and to dealing with the issue involving state EPA closure of our excellent municipal hazardous waste incinerator (due to noncompliance with Clean Air Act regulations on expulsion of salt spray particulates). Another example is my association with the organization Zero Population Growth in the '70s. Being an ardent supporter of the value of education, I took upon myself the task of enlarging the focus of the ZPG Board of Directors from policy and lobbying to education, which was no easy task for persons desiring a "quick fix" approach. Yet, with the writing of one grant proposal which hired our staff director of Pop Ed, I was able to convince the Board and raise nearly $350,000 for teacher workshops and materials from federal and private foundations in just a few years. The second example, the National Association for Environmental Education, of which I am President, has formed as the organization for professionals in the environmental education field. NAEE provides communication among professionals through a newsletter, annual conference, workshops, and conference proceedings. Currently it is organized into sections representing member's interests, which are at present non-formal education, (higher) environmental studies, and elementary and secondary education. Hopefully, this provides for the amplification of citizen interests.

NAEE, currently a membership service organization, has recently stepped into the realm of policy and lobbying. On NAEE's behalf, I have testified for teaching certification on the state level. We hope within the next year to become a vocal and vital force on the national level for environmental education. It is my bias that the rethinking of education in this nation, including science education, must now include within the "back to basic" movement environmental concepts. The basics have changed or were never defined adequately. Environmental (survival) education is and always should have been a basic and fundamental component of our educational facilities. Had it been, we would not find ourselves dealing with crisis upon environmental crisis.

---

*Dr. Schultz is Associate Professor of Biology and Environmental Science, Raymond Walters College, University of Cincinnati, and President, National Association for Environmental Education.

In summary, citizen interest groups will continue to be of importance in amplifying individual concerns by forming larger constituency. In addition, and most importantly, they serve to translate information into critical issues which are not and have not been resolved by the formal structure of society. We of the environmental education movement have not yet affected policy because we have not recognized and organized ourselves as a potent constituency. That effort, to produce no less than an environmentally literate populace, remains our great challenge of the next several years.

The Christian Church and Environmental Education Futures

*Charles H. Yaple**

The Statement of Purpose for the First National Congress for Environmental Education calls:

> For diverse groups with an interest in environmental education (EE) to collectively address the national issues in EE for the 1980's and to provide a unified voice for the field.

Yet, this writer would wager that very few, if any, representatives from church and other religious organizations are in attendance. Does this absense reflect a lack of interest on the part of clergy and religious leaders? Not according to a recent nationwide study of the Christian Church and environmental education.

The purpose of the study was to describe the past, present, and potential environmental education involvements of the Christian Church in the United States. The four-fold objectives of the study were to: 1) analyze the central tenets of Christianity and determine if they obligate the Church to be involved with environmental education, 2) determine the shape of church involvement with conservation and environmental matters prior to the first Earth Day, 3) determine the present scope of church involvement with environmental education and, 4) analyze the opinions of church professionals and environmental educators towards future church involvements with environmental education.

**Dr. Yaple is Assistant Professor of Recreation Education, State University of New York, College at Cortland.*

While space limitations for this paper do not allow detailed explanation of all study findings, and since "E.E. Futures" is the theme of this National Congress, the following provides only a synopsis of findings for objectives one through three, with more thorough attention given to the fourth objective concerning future church involvements with environmental education.

In order to address the first objective, a thorough analysis of the Biblical foundations of Christianity was conducted. Findings suggested that old and new testament themes of a) stewardship, b) faith in God as both sovereign creator and savior and, c) God's plan for unity between himself, humankind, and nature, do obligate the Church to be actively involved in preserving the earth.

The second study objective was accomplished through documentary analysis. Findings indicated that the spirit of capitalism, fueled by the Protestant Reformation and the advent of the Industrial Revolution, engulfed not only the minds of Americans in the 18th and 19th centuries, but their churches also. Thus, the Church played little part in the conservation movement of the early 1900's or in the rise of environmentalism in the 1960's. Religious concern for the environment found expression in the writing and activities of inspired individuals such as Thoreau, Muir and others.

Study objective three, pertaining to present church involvement with environmental education, was completed through development and administration of a mail questionnaire survey and documentary analysis. The survey instrument collected data pertaining to church involvement with environmental education in terms of "Educational program emphasis," "Direct work with environmental problems" and "Allocation of resources committed to environmental education." Subjects were selected regional and national church officers whose positions were likely to make them familiar with the environmental activities of their denominations. Church denominations participating in the survey were The American Lutheran Church, The Episcopal Church, The Roman Catholic Church, The Southern Baptist Convention, The United Methodist Church, and The United Presbyterian Church.

Survey results revealed that environmentally-related issues receiving most attention through church educational programs are world hunger, lifestyles, land stewardship, conservation of energy and environmental ethics. Use of the printed word is the most popular form of addressing these issues. Direct programmatic outreach efforts are most apparent with world hunger and lifestyle education endeavors. Personnel and monetary resources allocated to environmental education are not substantial and appear to be assigned on a "special need" basis although one denomination has created a national office of Environmental Justice and Survival. Clergy appear to receive training in environmental matters primarily through incidental exposure in various courses while in seminary school.

The final study objective, and the one most significant for the work of this Congress, related to the opinions of church professionals and environmental educators towards the role of the Church with environmental education. The objective was addressed through the development and administration of a nationwide mail opinionnaire survey. Subjects were 739 randomly selected members of the Conservation Education Association (CEA), National Association for Environmental Education (NAEE), Religious Education Association (REA) and chief executive church officers (Bishops, etc.) identified from the directories of the six church denominations participating in the study. Subjects were asked to respond to a series of Likert-scale type statements concerning church relationships with environmental education. Data gained from an overall response rate of 64 percent were subjected to statistical testing utilizing the chi-square test of significance and Cramers V test of association. Significance was established at the .05 level of confidence.

Results of the opinionnaire survey (See Tables 1 and 2) indicated that subjects were quite positive in most cases about the Church being involved with environmental education. Of the four groups surveyed, Church officers, followed by subjects from the REA, NAEE, and CEA, were most supportive of church involvement. Environmental issues receiving strongest support for church involvement were world hunger, land stewardship, environmental ethics, population, lifestyles and nuclear energy.

Questioned as to specific ways in which the Church should be involved with environmental education, subjects were most supportive of ways that did not involve the Church in complex technological matters. Strongest agreement among subject groups was for the Church to: a) be involved with teaching environmental responsibility, b) provide environmental training in seminary schools, c) be active in community environmental education and, d) to make public position statements on environmental problems.

The preceding suggests considerable interest in environmental education by members of the clergy, church officers, and religious educators. Environmental groups would do well to remember recent research findings concerning the power of the clergy to influence people. "For the fourth time in a row, a national survey has shown that members of the clergy are ranked highest among professional groups in terms of 'honesty and ethical standards' by the American public." (Dunham, 1981, p. 2) The importance of that finding by the George Gallup pollster organization is that clergy, if duly educated and motivated, could be valuable community environmental education teachers. Muth and Hendee found, in their research on "Technology Transfer and Human Behavior,"

> ...the flow of new information in any social system is not random. Certain individuals are sought out for information, opinions, and suggestions about many things, and it is by them that innovations are most effectively diffused throughout a social system. But only a few key people in a community have such influence. (Muth and Hendee, 1980, p. 141).

Robert Roth of the Ohio State University, in writing about the aims of environmental education, explains that they must include concern for developing a citizenry that is:

1) knowledgeable about the complex interrelationships of the biophysical and sociocultural environments;

2) aware of both the associated environmental problems and alternatives for solving those problems; and

3) motivated or committed to working toward solving environmental problems in such a way as to create environments that are optimal for living. (Roth, 1971, p. 65)

TABLE 1

COMPARISON OF AGREEING OPINIONS TOWARDS STATEMENTS CONCERNING CHURCH INVOLVEMENT WITH ENVIRONMENTAL MATTERS[1]

Statements	REA[2] %	CHURCH OFFICERS %	CEA[2] %	NAEE[2] %
1. Part of the mission of the Church should include a concern for the teaching of environmental responsibilities.	98.5	99.1	91.6	99.1
2. See Table 2 for statement #2.				
3. The Church should make advocacy or public position statements concerning environmental problems.	85.1	90.6	63.8	74.6
4. The Church should be concerned with the technological, economical, and political aspects of environmental problems as well as the moral/ethical consideration.	84.5	79.6	42.6	72.8
5. The Church should write and publish educational materials concerning environmental issues.	80.1	85.3	65.5	73.1
6. Church staff should actively participate in community environmental education.	79.4	84.6	79.6	80.0
7. The Church should employ at the national or state/regional level, professional environmental education resource people.	48.5	38.5	53.3	67.1
8. Seminaries or clergy training schools should provide instruction which relates religious and environmental issues.	89.6	93.2	86.6	91.4
9. Public schools should be most responsible for environmental education.	57.9	69.3	83.4	61.1

1. Figures are a composite of "Strongly Agree" plus "Agree" categories for each group.

2. REA (Religious Education Association); CEA (Conservation Education Association), NAEE (National Association for Environmental Education).

TABLE 2

COMPARISON OF AGREEING OPINIONS TOWARDS CHURCH INVOLVEMENT WITH ENVIRONMENTAL ISSUES[1]

Statement 2

The teachings of the Church should deal with the following issues:	REA[2] %	CHURCH OFFICERS %	CEA[2] %	NAEE[2] %
World Hunger	99.5	99.1	95.0	96.4
Solid Wastes	78.6	78.9	62.0	68.8
Toxic Substances	81.8	87.8	61.4	72.5
Air Pollution	87.1	89.6	63.8	71.3
Noise Pollution	80.4	77.0	62.0	63.8
Nuclear Energy	92.8	95.7	61.1	72.6
Conservation of, or Alternative Energies	88.6	91.4	75.0	80.1
Land Stewardship, Preservation of Natural Resources	92.8	99.2	95.1	96.4
Endangered Species	76.0	72.1	72.4	84.4
Population	91.8	93.9	81.9	90.2
Environmental Ethics	95.9	92.2	93.4	97.5
Water Pollution	88.6	90.3	67.2	75.1
Urban Environmental Planning	82.5	83.5	62.1	67.6
Life Styles	91.2	91.0	77.6	89.1

1. Figures are a composite of "Strongly Agree" plus "Agree" categories for each group.

2. REA (Religious Education Association), CEA (Conservation Education Association), NAEE (National Association for Environmental Education).

Much effort has already been expended by educators trying to implement items one and two. However, without "motivation or commitment" from a majority of the citizenry, all the legislation, technology, and education in the world will fall short of ensuring an earth capable of sustaining life for its inhabitants. How, and from what source(s), can the ingredients of motivation and commitment be obtained?

This author's main thesis is that the Christian Church, as a shaper of human behavior, can and should play an important role in promoting motivation and commitment for the resolution of environmental problems and the evolution of creative environments that are optimal for living. If it attends in a serious, vigorous and systematic fashion to the implications of its central symbols and the findings of environmental science, the Church may significantly assist in bringing about the aims of environmental education as outlined by Roth.

The task confronting those interested in furthering environmental education entails the involvement of all groups and institutions within society that can help, as paraphrased from Lynton Caldwell, "internalize an ecological conscience in a critical mass of humankind." (Caldwell, 1980, p. xiii). The Church and other religious groups are likely sources of assistance in bringing about "ecological conscience" and need to be included in planning environmental futures. Perhaps it is time for some environmental organizations to consider the creation of sections on Religion and Ethics within their ranks.

One outcome of the First National Congress for Environmental Education Futures: Policies and Practices could be the establishment of a special task force charged with exploring ways of interfacing with organized religion. As a beginning, the task force might be charged with encouraging various religious organizations to join the Alliance for Environmental Education. The considerable concern for environmental education expressed by members of the Religious Education Association in the study described earlier suggests that organization as a potential candidate.

Recent completion of an exhaustive study of its mission perspective has prompted the thirty-two-denomination National Council of the Churches of Christ in the U.S.A. (NCCC) to be "more pluralistic in the way it extends its compassion and services" (Pohl, 1983, p. 12). A powerful force in the civil rights movement of 1960's, the NCCC may now be receptive to actively supporting environmental education endeavors. The time seems opportune to solicit the NCCC as an environmental education ally.

As stated by Thomas Harblin, the

> nexus of science and religion can help man to direct the 'ecovoluntary' process towards goals more likely to yield continued life than those of present American culture. (Harblin, 1976, p. 18).

References

Caldwell, Lynton K. "An Environmental Agenda for the 1980's: Priority Amidst Diversity." Current Issues VI: The Yearbook of Environmental Studies. Columbus, Ohio: ERIC Clearinghouse for Science, Mathematics and Environmental Education, 1980.

Dunham, Spurgeon M. "High Marks for Ministers in 'Honesty, Ethics' Should Become a Challenge." The United Methodist Reporter. October 2, 1981.

Harblin, Thomas Devaney. "Mine or Garden?: Values and the Environment--Probable Sources of Change in the Next Hundred Years." Paper presented at the conference on The Ecosystem, Energy and Human Values--The Next 100 Years. Rollins College, Winter Park, Florida. March 1976.

Muth, Robert M. and Hendee, John C. "Technology Transfer and Human Behavior." Journal of Forestry. March 1980.

Pohl, Keith. "The National Council of Churches: Who Needs It?" The Interpreter. Dayton, Ohio: United Methodist Publications. July-August, 1983.

Roth, Robert E. "Fundamental Concepts for Environmental Management Education (K-6)" in Outlines of E.E., edited by Clay Schoenfeld. Madison, Wisconsin: Dembar Educational Services. 1971.

Yaple, Charles H. The Christian Church and Environmental Education: A Study of Involvements in the United States. Dissertation Abstracts International. Ann Arbor, Michigan. 1982.

Interest Group: Elementary/Secondary Education

Missouri Design for the Future: Comprehensive Environmental/Conservation Education Program

*Donald K. Heard**

One hundred eighty years ago this month, in a speech on liberty and education, Thomas Jefferson wrote, "The commonwealth requires the education of her people as the safeguard of order and liberty." Basic to this philosophy of democratic governance which meticulously considers human behavior and happiness is the concept that free, educated citizens make intelligent, sound, pragmatic decisions which sustain society through each succeeding generation. Educated people can comprehend ideas. They can think for themselves. They can debate the issues in a forum. They can reach "the best" compromise which supports the common good. An educated people is the stuff that democracy is made of.

In America, education and conservation are mutually supportive. Through democratic processes educated citizens will implement wise decisions concerning the "wise use" of natural resources which will keep America strong. That statement, I hope, causes you to recommit your efforts to the cause of environmental/conservation education. The future of liberty, freedom and of

---

**Mr. Heard is Superintendent, Education Programs, Missouri Department of Conservation, Jefferson City, MO, 65102.*

the "human habitat" on the planet Earth, is dependent upon how well America and the free world can compete in the world arena with despotic dictorial systems of government and uninformed, undisciplined resource users. Our job as conservation educators is the most important task taking place in the world today.

Just as Thomas Jefferson provided the philosophy, common sense and foundation for education in America, Aldo Leopold, the eminent conservation educator and philosopher, provided the philosophy, common sense and foundation for conservation education in America. Leopold pointed out that if the "wise use" of resources was to prevail, there must be quality conservation education in every generation. Leopold defined conservation as a state of harmony between men and land. He admonished against repeated pleas for "more conservation education" as a viable solution to each new resource dilemma. His concern was with the content or quality of conservation education, not its volume.

No sensible person can refute the value of educational quality in a democratic society. No sensible conservationist can deny the value of quality conservation education programs.

People learn in a variety of ways. They learn by reading, observing, doing and listening; they also learn from experiences and examples offered by others. Thus, education in America consists of two components: formal and non-formal education.

Missouri Design for Environmental/Conservation/Outdoor Skills Education Program

Since 1941, the Missouri Department of Conservation has consistently supported a formal conservation education program and a formal outdoor skills education program through the established system of public, private and parochial schools. Our Commission has always insisted that its staff of conservation and outdoor skills educators be trained professionals with instructional experience.

Fourteen Conservation Education Consultants and eight Outdoor Skills Specialists are assigned throughout the Show-Me state. Their primary assignment is to provide conservation education and outdoor skills education services to all schools, colleges, and universities in their districts. These educational curriculum services are comprised of four components: (1) program materials, (2) audio-visual aids, (3) consultation with professional educators, and (4) pre-service and in-service teacher and youth leader credit and non-credit workshops and courses.

In 1958, voluntary hunter safety training was introduced. In 1973, the hunter safety program was expanded to include additional aspects of hunting activities and the title was changed to Hunter Education. In 1977, Hunter Education was expanded becoming Outdoor Skills Education to include all areas of outdoor skills education. The Conservation Education Unit and the Outdoor Skills Education Unit were united to form the Education Section at that time.

The overall objective of the Conservation Education Unit is to develop an environmentally literate, competent and dedicated citizenry which acts to prevent or resolve conflicts between people and the environment. The goal is a dynamic balance between quality of life and quality of the environment.

The overall objective of the Outdoor Skills Education Unit is to provide opportunities for learning and participating in lifetime outdoor activiites as they pertain to natural resources, the concept of management by harvest, environmental respect, and the pleasurable, constructive use of leisure time.

The Conservation Education Consultants and Outdoor Skills Education Specialists devote full time to the accomplishment of these objectives. They work with colleges and universities, the Department of Elementary and Secondary Education, school superintendents and administrators, teachers, community leaders, and youth leaders, and administering the Department's formal education programs at the pre-school, elementary, secondary, community college, college and university levels.

The content of the Missouri Department of Conservation's formal education program is based on the interdependence of all resources. Therefore, the Conservation Commission insists that the Department, and especially the Conservation Education Unit, focus upon an ecological approach to the conservation of natural resources. Our goal is to instill in Missourians a philosophy of wise resource use and an ecological conscience; or, in Leopold's words, a "land ethic."

One of the strengths of the Department's formal conservation education program has been its long-term continuity. This continuity has enabled our field staff to earn the respect of professional educators throughout the state. We've never oversimplified research concepts and issues to make them educationally "easy" or "fun." We've been guided by Leopold's admonishment that "in our attempt to make conservation easy, we have made it trivial."

Since 1941, the Department's formal education program has stressed infusing conservation concepts into all appropriate subject matter areas of the school curriculum. The effectiveness of Missouri's formal conservation education program must be viewed in the context of the Department's total education effort. All Department personnel share a commitment to the nonformal component of this total effort. Viewed in this totality, our formal conservation education program has made a significant and important contribution to this total effort.

Long Range Planning

The past is history and the present will become so tomorrow. What about future conservation education programs? Our formal education program cannot rest on past laurels, nor can yours. The time is growing short and the issues are too important. In 1975, a five-year Long Range Plan, which established the basis for the Missouri Design for Conservation Education, was completed. In 1980, a new long range plan, which updates the Missouri Design for Conservation Education, was completed. Currently under development from the 1980 plan are new programs designed to increase the impact in Missouri. An early childhood program has been launched to address the reality that many attitudes are formed before a child enters elementary school. An expanded secondary school program is being developed for specific curricular areas. A leadership development program, designed to strengthen the leadership capabilities of people wishing to be an active conservation citizen in the public arena, is being developed.

We conservation professionals cannot afford to wait until today's youth reach maturity. We all should redirect the emphasis of our non-formal education programs. We should spend less time addressing the already converted, be they sportsmen or other outdoor enthusiasts. We should spend more time attempting to educate the uninterested, particularly those in positions of power. This requires the development of specific programs and materials for professional, business and religious organizations.

As we evaluate our futuristic, professional approaches to conservation education, we should consider the interstate cost-sharing and educational material production within similar biotic regions. This regional, consortium approach could result in substantially lower material costs to all member agencies and organizations. The public interest would seem to dictate this approach.

Finally and most importantly, conservationists should join professional educators in a mutual concern for the quality of education in general. We should do so as voters, taxpayers, and parents if we truly share Leopold's concern for the quality of conservation education. To do otherwise is analogous to expressions of concern about wildlife conservation which ignore the consequences of habitat loss.

In closing, I wish to focus your attention upon some ideas about the evolution of nations which today I aptly apply also to our field . . . Environmental/Conservation Education. History indicates that nations evolve through stages: (1) from bondage to spiritual faith, (2) from spiritual faith to great courage, (3) from courage to liberty, (4) from liberty to abundance, (5) from abundance to selfishness, (6) from selfishness to complacency, (7) from complacency to apathy, (8) from apathy to dependency, and (9) from dependency back to bondage.

I think you will agree that environmental/conservation professional educators are free from bondage. Also, that they have faith . . . courage is perhaps a question yet to be answered. Do we have the courage to more forward with the necessary enthusiasm, hard work and financial support necessary to support the conservation education needs of America?

The future of America and our planet Earth depends on it.

"The Past is Prologue"

*Alan D. Sexton**

I would like to begin by briefly addressing four general topics: The Legacy of Liberty Hyde Bailey; Major Environmental Education Conferences of the Past; The Present Status of Environmental Education; and Opportunities.

The Legacy of Liberty Hyde Bailey

Liberty Hyde Bailey was the first president of the American Nature Study Society, one of the two sponsoring organizations of this Congress.

Following are a few quotes from some of his publications (circa 1897-1903). "Nature study, as a process, is seeing the things that one looks at, and the drawing of proper conclusions from what one sees. Its purpose is to educate the child in terms of the environment, to the end that his life may be fuller and richer...Nature-study would not necessarily drive any subject from the curriculum; least of all would it depricate the value of the 'humanities'; but it would restore to their natural and proper place the subjects that are related to man...If we are to interest children or grown-ups, either, for that matter, we must begin by teaching the things that touch their lives.... While it is not my purpose to enter into any discussion of the methods of teaching nature study, I cannot refrain from calling attention to what I believe to be some of the most serious dangers. (1) I would first mention the danger of giving relatively too much attention to mere subject matter or fact. (2) A second danger is the tendency to make the instructions too long and too laborious. (3) A third danger is the practice of merely telling or explaining; A fourth point I ought to mention is the danger of clinging too closely to the book habit... (5) Finally, we must come into contact with real things..."[1]

If we were to substitute "our" term environmental education for Bailey's nature-study, we have all the philosophy we need. We do not need more philosophy. We need a cooperative, coordinated effort to implement.

Past Environmental Education Conferences

This Congress has been preceded by several conferences worthy of mention: (1) 1970 - National Conference on Environmental Education, Green Bay, Wisconsin; (2) 1972 - National Conference on Environmental Studies Programs in Higher Education, Green Bay, Wisconsin; (3) 1974 - National Working Conference on Emerging Issues in Environmental Education, Ann Arbor, Michigan; (4) 1975 - Environmental Education, Perspectives and Prospectives, Snowmass, Colorado; (5) 1975 - International Workshop on Environmental Education, Belgrade, Yugoslavia; (6) 1976 - North American Regional Seminar on Environmental Education, St. Louis, Missouri; (7) 1977 - Intergovernmental

---

**Mr. Sexton is currently on the boards of ANSS and CEA. He is a math and science teacher in the Council Rock School District, Richboro, PA.*

Conference on Environmental Education, Tbilisi, USSR; (8) 1978 - National Leadership Conference on Environmental Education, Washington, DC; and (9) 1982 - Session of Special Character of the United Nations Environment Programme, Nairobi, Kenya.[2,3]

According to Disinger[4], "...little has been done in terms of the recommendations of the 1978 Leadership Conference in terms of implementing and/or monitoring...Instead, environmental educators, individuals and groups, have gone their separate ways, evidencing continued and, in some cases, accelerated fragmentation of effort."

I participated in three of those conferences and have studied the official reports of each. I heartily agree with Disinger on the non-results of the 1978 Conference and the others as well.

Present Status

Currently there are some exciting and high quality programs in elementary and secondary schools in specific locations.

We are, however, experiencing decreased federal, state and local emphasis on environmental education. I am speaking not as just a widely-read person but as one who has "been there."

From 1971-1982 I was employed by Project KARE (Knowledgeable Action to Restore Our Environment), a federally funded environmental program. During that time we conducted teacher training sessions in over 300 locations in Pennsylvania and in over 100 locations in 22 states outside Pennsylvania. During that some time we also saw our annual budget drop from $250,000 to $40,000.

We were unable to secure state, regional and/or local support to continue this program, and in May of 1983, KARE ceased to exist. On the one hand I'm happy to no longer be dependent on "soft" money, but on the other I'm saddened by not being able to carry on a program which has been developing over the past twelve years.

Opportunities

This is not a time to dwell on failures. It is a time to plan successes for the future.

Participants in this conference represent formal and non-formal education; individual interests; local, state, regional, national and international agencies; and professional organizations. Most of us are representing more than one of the aforementioned. If we can't develop and implement necessary strategies for a coordinated environmental education program, then we will have failed in our mission and we will have ourselves to blame.

Conclusions

I have spoken of the debt that we owe Liberty Hyde Bailey, past environmental education conferences, the current status of environmental education and of opportunities for the future.

Our task this afternoon is to consider each of the recommendations of the first session addressing each of the following:

1. Who is(are) the target group(s)?

2. What constraints exist?

3. What are the strategies that should be implemented to overcome the constraints allowing the recommendations to be implemented?

4. What sort of continuing critique should be established to measure the progress toward implementation of the recommendation?

Let us begin!

BIBLIOGRAPHY

1. State of New York - Department of Agriculture, Cornell Nature-Study Leaflets, J.B. Lyon Company, Albany, NY, 1904.

2. Conservation Education Association Newsletter, Vol. 30-3, University of Wisconsin, Green Bay, WI, 1983.

3. The Nairobi Declaration, Mazingira, Vol. 6-3, 1982.

4. ERIC/SMEAC Environmental Fact Sheet No. 1, John F. Disinger, ERIC Clearinghouse/SMEAC, Ohio State University, 1983.

I Speak for Teachers

*Robert J. Warpinski**

Please allow me to start by drawing an analogy. Let us assume that I am going to build a house. As with any good builder, I need to determine what should be included in the design and plan, and how this fits in with the amount of money I can afford to spend. I make these determinations with the help of an architect, and satisfied that we have covered all aspects of what is needed and desirable, I begin to erect the structure.

As the house takes shape, my spouse intervenes with some suggested changes in the kitchen and bathrooms. Then my children come along and insist that we must absolutely have a family room; "everybody who is anybody has one!" This one requires some major adjustments to the entire design, plan and cost, but I try to accommodate. My parents convince me that the dining room must have a bowed window to make that room pleasant, and that requires some structural change in the plans, including the expenses of an additional

---

**Mr. Warpinski is Project Director, Project I-C-E, Green Bay, WI.*

footing to withstand climatic conditions. And then the other set of in-laws comes along insisting on the merits of a green room - why, with proper modification it can be a source of supplemental solar heating, not to mention the aesthetics of year-long greenery; even vegetables. This one, together with the family room before, really screw up the original plans in all dimensions, including cost!

This, my friends, is really no different than what we are doing in today's schools across the land. The teacher in the class is the builder, the school's curriculum design and the teacher's instructional program are the house plan, and the cost factors of building a house are no different than the limitations of time available to teach, not to mention providing adequate resources necessary to do the job.

In the last two decades, we have gone to the teachers time and again saying you ought to be doing this and that. I have been in curriculum work now just shy of 20 years and without really trying, I can think of such programs as career education, sex education, health and nutrition, vocational education, programs for the low-achievers, the disadvantaged, drug and alcohol abuse, the gifted and talented, and yes, environmental education, and today computer literacy - everybody ought to have some. All these and more have not only been suggested, but often mandated, and the impact on the teachers has been no different than that on the house builder. The instructional demands exceed the instructional time available to accommodate the needs and wishes of all no matter how important each one is. We also have seriously jeopardized what may have been a good instructional program in terms of basic education by asking teachers to teach more than they can handle and often what they were not trained or prepared to teach.

More directly, how does this have application to what we are about in environmental education and this policy track group? Folks, the literature abounds with articles citing the merits of the holistic approach to EE, but we have not been able to get our act together. Time after time, we are going back to the teachers - the same teachers - extolling the merits of and exhorting such as experimental outdoor education, nature study, the urban environment, energy education, agriculture in the classroom, problem-solving techniques in the community, not to forget the bevy of more specific causes and special interest groups from Save the Whale to the Snail Darter! Specifically, I take to task such programs as Project Learning Tree, Energy-Man-Environment, Project WILD, and The CLASS Project - while each has merit, and perhaps does no harm, it does not meet the holistic goals of a good environmental education program. How many straws can we lay on the camel's back before it breaks? The teachers are the "camels," and many are simply throwing up their hands in sheer dismay.

As you plan what the policy track should be for elementary and secondary education, please keep in mind this quote from an editorial in the Spring, 1975 issue of The Journal for Environmental Education. Clay Schoenfeld writes:

> Environmentalism is, in a sense, global warfare. But you do not win wars by attacking everywhere at once in equal strength. You come ashore in a series of beachheads programmed according to some strategic design. Instead of spreading themselves all over the map, as they tend to be doing, environmental educators might well try to agree on a couple of accessible targets and concentrate their fires.

In the tasks you have outlined From Ought to Action and this morning's session, concentrate on how best to achieve a sound, basic, total program for environmental literacy for all children and students across this great land of ours!

Thank you.

Mandating Preservice EE Teacher Training: The Wisconsin Experience

(An Abstract of a paper presented at the
First National Congress for EE Futures)

*Richard J. Wilke**

The key to successful K-12 environmental education (EE) is the classroom teacher. If teachers do not have the knowledge, skills or commitment to environmentalize their curriculum, it is unlikely that environmentally literate students will be produced by our K-12 schools.

As early as 1935 the legislature of the state of Wisconsin required science and social studies teachers to obtain "adequate preparation in the conservation of natural resources" before they could be certified. Unfortunately, as our environment concerns broadened from soil and water conservation to hazardous waste disposal, endangered species, and acid rain, the Wisconsin requirements for teacher training remained constant. The needs of 1935 are different than current needs in the area of environmental education.

In 1980 the author was charged by the Wisconsin Association for Environmental Education and the Wisconsin Citizens Environmental Council to review the current status of preservice teacher training in Wisconsin.

Input was obtained through survey letters sent to over 400 conservation, education and environmental organizations. Responses indicated there was a need for modifying the 1935 requirements. Modifications most often suggested included the addition of ecological training, environmental issue awareness, citizen participation skills and EE methods. In addition, numerous respondents felt EE training should also be required of preservice early childhood, elementary and agriculture instructors.

**Dr. Wilke is Associate Professor, College of Natural Resources, University of Wisconsin, Stevens Point, WI 54481.*

A broadly representative Study and Support Committee was formed by the author to plan the strategies necessary to obtain approval for the desired changes. A proposal was developed and submitted for agency and legislative review. Political support was generated for the proposal and after nearly four years of effort the proposal was adopted.

Effective July 1, 1985, all persons seeking certification as science, agriculture, social studies, early childhood, or elementary teachers will have to have achieved specified competencies in EE. These include:

(1) Knowledge of the wide variety of natural resources and methods of their conservation;

(2) Knowledge of interactions between the living and non-living elements of the natural environment;

(3) Knowledge of the concept of energy and its various transformations in physical and biological systems;

(4) Knowledge of local, national and global interactions among people and the natural and man-made environments including:

  (a) historic and philosophical review of the interactions between people and the environment,

  (b) the social, economic and political implications of continued growth of the human population,

  (c) the concept of renewable and non-renewable resources and principles of resource management,

  (d) the impact of technology on the environment,

  (e) how such interactions affect physical and mental well being.

(5) Ability to use affective education methods to examine attitudes and values inherent in environmental problems;

(6) Ability to incorporate the study of environmental problems in whatever subjects or grade level programs the recipient of the certificate or license is permitted to teach through the use of the following methodologies: (a) outdoor teaching strategies, (b) simulations, (c) case studies, (d) community resource use, and (e) environmental issue investigation, evaluation and action planning.

(7) Knowledge of ways in which citizens can actively participate in the resolution of environmental problems.

Wisconsin need not be the only state to require mandatory preservice training in EE. The author firmly believes the success in Wisconsin can be duplicated in other states. (Persons interested in more details regarding the processes used in Wisconsin are invited to contact the author for a copy of the 25-page paper from which this is abstracted.)

Interest Group: Higher Education

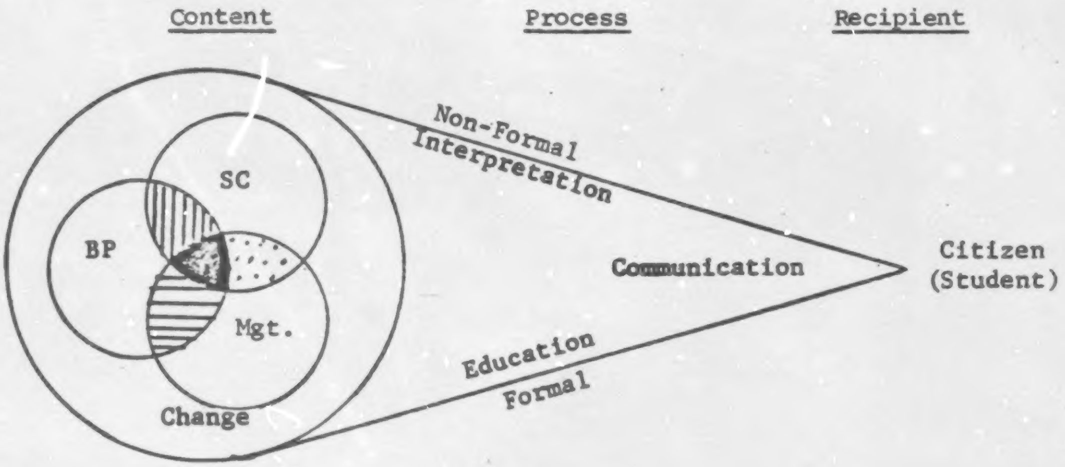
Environmental Education at The Ohio State University: Structure/Status/Future

*Robert E. Roth**

Structure

Area of Academic Concern

The area of academic concern of the Division of Environmental Education includes basic conceptual knowledge of environmental management including natural resources, their management, and specific concepts, knowledge and methodologies appropriate for programs in environmental communications, education and interpretation. The conceptual knowledge base is comprised of big ideas in four interrelated areas: Biophysical (BP), Sociocultural (SC), Change, and Management (Mgt.). The following model illustrates the relationships between content and/or knowledge areas, methods and intended audience:



Environmental Education emphasizes the application of the above concepts through the information delivery process of environmental communications, education and interpretation.

1. Environmental Communications includes the content base above and a study of communication theory; analysis techniques, information dissemination, modeling, budgeting, evaluation, and research approaches applicable in various media in relation to resource use and environmental management/education. The Environmental Communications Program includes the following options which may be selected: (1) Written Communication, Audio-Visual Communication, and (2) Public Relations/Personal Presentation Skills.

2. Environmental Education utilizes a content and methodological base including study of concepts of environmental management and natural

---

**Dr. Roth is Chairman and Professor, Division of Environmental Education, School of Natural Resources, The Ohio State University.*

resources, natural history, resource agencies, interactions of resource management, watershed evaluation, gaming and simulation in resource management, programming and planning, resident outdoor education, curriculum and activity development, and conservation education methodologies, research, evaluation, and theory.

The Environmental Education Program includes options in: Early and Middle Childhood (dual degree with EMCE, College of Education); Science Education (dual degree or post degree with Science and Math Education, College of Education) including specializations in Biological Science, General Science, or Earth Science; Vocational Natural Resources and Environmental Science in cooperation with the Department of Agriculture Education. Educational certification can be earned by completing additional work in the College of Education in conjunction with the dual degree or post degree programs.

3. Environmental Interpretation includes study of: the concept of the interpreter, interpretive principles and techniques, visitor characteristics, information services, interpretive centers and exhibits, interpretive planning and programming, evaluation, research and theory. The Environmental Interpretation Program includes two specializations under the single option of Interpretation; namely, Natural History and Cultural History.

Broad Goals of EE Division

The goals of the Division of Environmental Education are:

1. To provide undergraduate and graduate programs which prepare students for professional work related to environmental education including interpretive skills, appropriate environmental education curriculum planning and methodologies, communication techniques, and scholarly research processes.

2. To conduct research in the areas of environmental interpretation, environmental education and environmental communications.

3. To provide extension/public services which include inservice environmental education opportunities, public information dissemination, and coordination of environmental education activities with local, state, and federal agencies and organizations; and

4. To develop, administer, and teach general introductory courses in environmental management for all majors in Natural Resources at the undergraduate and graduate levels, and as a service for other academic units, where applicable, at the undergraduate and graduate levels throughout the entire University.

Status

The Division of Environmental Education conducts programs in Environmental Communications, Environmental Education and Environmental Interpretation through resident instruction, research and public service activities. Each major program consists of a well developed series of courses that include basic education requirements, a natural resources core, major specialization and electives. Highly professional faculty carry out the basic instructional process and utilize teaching associates as assistants in teaching/learning and course management. Twenty four courses are presently offered.

Research programs are being pursued in each of the three concentrations of the Division. Research of importance to the state, nation and world has included development and operation of the Environmental Education section of the Educational Resources Information Center (ERIC), Clearinghouse for Science, Mathematics and Environmental Education (SMEAC) which is one of sixteen national clearinghouses for the acquisition, analysis and dissemination of printed educational information in specific curricular areas. About 1000 environmental education documents per year are analyzed with 700 being abstracted or annotated in Resources in Education (RIE) or Current Index to Journals in Education (CIJE). Eighty major environmental education publications have been produced over the past ten years, with distribution of about 1400 per title over this past three year period. Four bulletins or fact sheets are produced and distributed annually to about 3000 users nationally and internationally. An EPA-funded project processes about 1000 documents annually and also publishes six Instructional Resource Center (IRC) bulletins and four Water Quality Instructional Resource Information System (IRIS) updates per year.

Materials development, research and twenty teacher training workshops have also been conducted through Sea Grant programs in cooperation with both the College of Education and the Center for Lake Erie Area Research. Individual faculty and student research includes targeted projects involving contracts and grants and the contribution of articles by faculty who serve in various executive, consulting and guest editorial capacities with several national professional journals.

Public service functions include the conduct of a variety of workshops, public service activity seminars and presentations to upgrade practice and to promote the application of sound theory in environmental communications, education and interpretation practice. Faculty provide technical assistance for many groups ranging from presentations to conservation organizations, agencies and youth groups, to workshops for school systems, national and international seminars and consultation with foreign governmental agencies and institutions.

During the 1982-83 academic year, Dr. Rosanne Fortner and Dr. Victor J. Mayer, Education, conducted six one-credit Marine and Aquatic Education workshops for teachers in different cities in Ohio. They also taught a three-credit course on the Newark campus and a four-credit course in Toledo. All were supported by funding from Sea Grant. An additional non-credit inservice workshop was conducted for Hilliard teachers.

Academic Program Modifications

Course additions and improvements have contributed to the enhancement of the Environmental Communications, Education and Interpretation programs of the Division during FY '83.

"Introduction to Environmental Management"

Natural Resources 201, under the leadership of Dr. Rosanne W. Fortner, has served this year as a model for the implementation of a second-level library skills development program for the school. Cooperation of library personnel and instructors have made this pilot study one which will serve the nation as a model of what can be done to enhance the information-acquisition skills of our students. Dr. Mary Lynne Bowman-Cowen served as chairperson of the Student Library Use Committee that was responsible for the development of the two phase approach for undergraduates.

"Field Studies Environmental Interpretation"

A study tour, Natural Resources 571 "Field Studies in Environmental Interpretation" and involving 14 students was led by Dr. Gary W. Mullins. The group visited and studied at the Barrier Island Environmental Education Center in South Carolina, Historic St. Augustine, Florida, the Everglades Big Cypress Nature Center and the Corkscrew Swamp Sanctuary during the break between Autumn and Winter quarters.

"Exhibit Preparation"

The first offering of Natural Resources 516 that could utilize the new Exhibit Preparation Laboratory was conducted with the interpretive exhibit prototypes developed by student teams being enthusiastically accepted by the cooperating agencies and organizations. The prototype exhibits were subsequently developed into full scale exhibits for use by the various cooperating agencies and organizations at their respective facilities.

"Resident Outdoor Education"

The second Resident Outdoor Education Block Quarter was offered by Dr. Clinton L. Shepard involving 10 students and about 1000 children from 12 different (K-6) school groups and two minority populations. Cooperating schools included Columbus, Hilliard, Lancaster, Delaware and Gahanna. Over $10,000 of income was generated for the Barnebey Center in the process.

Other Modifications

Dr. Shepard assumed responsibility for the SNR Honors Colloquium NRH 591, introduced a new course proposal as a group studies course, Natural Resources 694.01, entitled "Introduction to Environmental Education" and conducted a special Environmental Education Workshop (Nat Res 692) for Berwick Alternative School teachers and staff.

Research Emphases

Environmental Communications research this year has focused on the growing importance of technology and nonformal education. Attempts have been made to strengthen the program and its research capabilities through the use of microcomputers, and a faculty training program is planned for the summer of 1983.

The nonformal experience of last summer's museum program on The Great Lake Erie has led to funding for a 1984 extension of that project to other Ohio cities.

Dr. Fortner has assumed leadership of the Ohio Sea Grant Education Program for coming years.

Environmental Education research and development continues under a contract with the National Institute of Education, through the Educational Resources Information Center (ERIC) Clearinghouse for Science, Mathematics, and Environmental Education (SMEAC). Materials review and reporting of 50 to 100 environmental education research and resource documents per month is part of the on-going process.

A second three-year grant from the U.S. Environmental Protection Agency (EPA) supports the EPA Instructional Resources Center. As part of that effort, the Water Quality Instructional Resources Information System (IRIS), first published in 1979, is updated on a continuing basis. Twelve IRIS supplement volumes, each containing 400-500 entries, have been published to date; four are published each year. The IRIS system now contains about 8000 entries.

The Division continues to develop international research emphases through technical assistance, the development of instructional materials and strategies for use in targeted Caribbean countries and the production of research reports in relation to the movement of environmental education theory into practice. Dr. Clint Shepard presented a paper, in Spanish, at the First International Seminar on Environmental Education in the Dominican Republic, November 15-19, 1982. Drs. Roth, Disinger and Mullins conducted a prototype environmental education workshop in Barbados on April 12-15, 1983 for 20 selected science teachers in cooperation with the Caribbean Conservation Association and the U.S. Agency for International Development and Barbados Community College. A Barbados Environmental Education Manual was drafted by Drs. Disinger, Shepard and Roth. The Manual was subsequently adapted to local style and situations by Mr. Stafford Griffith and Mrs. Eugenie Williams, a doctoral student in the School of Education, University of West Indies and Acting Head of the Garrison Secondary School Science Department, respectively. Six hundred copies will be distributed to teachers in Barbados and to selected educators in the wider Caribbean.

Research dealing with minority youth was also conducted under grants received from the U.S. Forest Service. The emphasis dealt with attempts to increase perception and awareness of natural resources careers for minority youth and involved the Resident Outdoor Education program conducted at the Barnebey Center.

The Division of Environmental Education is the only academic unit in the United States that offers both well developed undergraduate and graduate programs in environmental communications, education and interpretation. Faculty provide leadership to the field through operation of the ERIC national information clearinghouse, the editing of professional journals, and by serving in a wide variety of professional capacities ranging from instruction to research and public service throughout Ohio and the nation as well as internationally. The unique contributions of the Division faculty have helped to establish local, state, national and international leadership of The Ohio State University in environmental education.

Future

Environmental Education at The Ohio State University has been developing over a 14 year period and will continue to undergo modification. Significant forces of change will impact future development: (1) Retrenchment - the effects of two and now possibly three consecutive years of fiscal retrenchment with resulting reductions in operating funds, support for research and for faculty development have had devastating results. (2) New leadership - The Vice Presidential and Dean level in the College of Agriculture in which the School of Natural Resources and Division are located, and at the Director's level of the School of Natural Resources in 1984, are leadership changes that have already led to major changes in priorities. It is not yet known what the impact on Division programs ultimately will be. (3) Perceived changes in National Environmental Priorities - National attention to environmental matters continues at a high rate but federal and state support for environmental education specifically has been drastically reduced, a disparity that demands correction. (4) International level - there is a rapidly growing concern for improved environmental quality, pollution control, appropriate technology, technical training and environmental education. Many countries of the world are looking to the United States for leadership, technical assistance and expertise to develop sound environmental education plans, programs and capabilities.

Under the preceding influences it is possible to project a future course of action at OSU for environmental education as follows:

1. Course offerings at the undergraduate and graduate/levels will be reduced in frequency by moving to biennial and rotated scheduling;

2. Emphasis on developing soft money support for research and development projects will receive increased emphasis;

3. Internship and professional work experience opportunities will be further developed to meet the needs of clientele in Ohio and across the nation, and as a means to institutionalizing needed professional positions;

4. International environmental education development will be vigorously pursued in response to increasing demand from developing countries around the world.

People and countries everywhere are showing increasing concern for environmental quality. Vast lobbying groups have sprung up around the world and environmental industries have developed with virtually every nation possessing an environmental agency as well as many organizations and concerned citizens. As reported in the July 18, 1983 U.S. News and World Report (p.40), "France alone has about 4000 (environmental societies)."

While economic curtailments will be experienced causing modifications of programs, available faculty, research and public service capability, the overwhelming demand for environmental quality and environmental education is obvious to even the casual observer. The Division of Environmental Education at The Ohio State University intends to continue to pursue the goals as indicated previously, and to make a difference in the state, nation and world. Leopold probably said it best: "Ours is not a job of building roads into lovely country-side, but of building receptivity into the still unlovely human mind."

That job still needs doing!

BIBLIOGRAPHY

Roth, R. E. Fundamental Concepts for Environmental Management Education, R and D Center for Cognitive Learning, University of Wisconsin, 1969; and

Bowman, M. L. The Development and Field Validation of an Instrument to Assess College Students' Attitudes Toward the Determinants of Environmental Issues. The Ohio State University, 1972.

"U. S. is Not Alone - Pollution is Global." U.S. News and World Report, July 18, 1983. p. 40.

Behavior and Environment: School of Natural Resources, The University of Michigan

*W. B. Stapp**

The focus of the Behavior and Environment Program is the interaction between natural resources and human and organizational behavior. The fundamental goal of the program is to help people, groups, and society at large come to grips with this interaction, with the impact of resource issues on personal and social priorities, and with the impact of people and groups on resource decision-making. This goal can be achieved by helping students integrate traditional natural resources disciplines in the context of developing skills and understanding relevant to the behavior, concerns, and interactions of groups and individuals.

The Behavior and Environment Program at the University of Michigan is centered in the School of Natural Resources (SNR). It is one of five formal programs in SNR. The other four, whose courses and faculty are readily available to Behavior and Environment students are: Ecology, Fisheries & Wildlife; Forest Resources; Landscape Architecture & Regional Planning; and Resource Policy, Economics & Management.

As the program names imply, SNR embraces both natural and social sciences as they are used in the study and management of natural resources. Students in the Behavior and Environment Program draw not only on the resources of SNR as a whole, but on the rest of the University as well. Units of the College of Literature, Sciences & the Arts (LS&A) of special interest to Behavior and Environment students include Economics, Journalism, Political Science, Psychology, Sociology, and Speech. Relevant courses are also offered in the College of Engineering, and in the Schools of Architecture, Business, Education, Law, and Public Health.

**Dr. Stapp is Professor, School of Natural Resources, Univ. of Michigan, Ann Arbor.*

The Behavior and Environment Program is composed of four different options. Professors Pat Bidol, Bunyan Bryant, and Jim Crowfoot in Environmental Advocacy; Professor Ron Rollet and Rich Block in Environmental Communications; Professors Paul Nowak and Bill Stapp in Environmental Instruction; and Professors Rachel Kaplan, David Hales, and Pat West in Recreation & Behavior. Students may affiliate with one of these options or they can pursue a joint program between two or more of them. It is also possible to develop a degree program in Behavior and Environment as a whole, drawing on any of the program faculty.

How do the various options differ? The simplest explanation is that Advocacy trains mostly social change agents, Communications trains people in writing and media skills, Instruction trains mostly teachers, youth leaders, and interpretors, and Recreation & Behavior trains individuals in the behavioral aspects of outdoor recreation. The general option is available for students who do not wish to specialize in one of the other four, but plan to focus on the larger area of behavior and the environment.

The Advocacy option emphasizes the relationship between environmental quality and social justice and how to change political institutions through interest-group activism. It is designed for students who want to improve the environment by organizing interest groups to fight for their environmental needs.

The Communications option stresses the use of communications media for environmental understanding and information sharing. It is designed for students who want to improve the environment through the use of communication skills.

The Instruction option puts the greatest stress on developing, implementing, and evaluating environmental curricula for both formal and non-formal educational settings. It is designed for students who want to improve the environment by helping people to clarify their environmental values and obtain new environmental knowledge and social skills to help bring about change.

The Recreation & Behavior option emphasizes the behavioral aspects of recreation. Included are such considerations as why people recreate, attitudes and characteristics of user groups that have implications for management strategies, and examination of the properties of natural settings that enhance people's satisfaction.

The differences among the options should not be overemphasized. The skills of communicating and organizing, educating and interpreting are likely to be needed in many contexts. Each of the areas and the program as a whole are committed to the role of individual citizens, social systems, and values in environmental improvement. Our similarities are more important than our differences, and we work together closely.

UNDERGRADUATE CURRICULUM IN THE BEHAVIOR & ENVIRONMENT PROGRAM

SNR undergraduates may develop a concentration in one of five options within the Behavior and Environment Program. Each takes a somewhat different approach to the task of integrating resource disciplines with a behavioral orientation. In Recreation & Behavior, the integration is substantive. In order to learn how to plan and manage outdoor recreation and park resources, students must study resource ecology, management and planning as well as psychological and sociological perspectives of recreation behavior. In Environmental Instruction, students must integrate the natural resources disciplines into a coherent curriculum appropriate for citizens in the decades ahead. Thus, knowledge of curriculum planning, teaching techniques, the institution of schools, and how people learn is combined with the content areas of natural resources. In Environmental Advocacy, students must integrate coursework in the resource fields with an understanding of the social causes and social impacts of current patterns of control over resources. At the same time, they must develop the skills and understandings they will need to influence resource decision-making on behalf of various constituencies. In Environmental Communications, students learn to apply information sharing skills, and an understanding of communication processes, to a broad range of natural resource concerns, using as a basis the observation and understanding that our behavior is communicative. Finally, a general option is available for students who do not wish to specialize in one of the other four, but plan to focus on the larger area of behavior and natural resources.

All five options share some common concerns. In each case, the student is asked to take coursework in each of three areas: theory and concepts, skill acquisition, and effecting change. While the focus within these areas would necessarily reflect the particular option, these three permit a different kind of understanding of the behavioral aspects within the concentration program. Briefly, these three areas are:

Conceptual basis - a common body of social science theory of human behavior is essential to each of the options. Courses in this group stress the conceptual understandings of human behavior at the individual, group, and societal levels.

Specific skills - effective utilization of the conceptual basis requires the acquisition of some specific skills. The ability to communicate, to plan, and to problem-solve is essential to each of the options. Skills related to organizing, to teaching, doing research, and group processes may play differentially important roles in these options.

Effecting change - the focus here is on first-hand experience combining the skills and conceptual tools. The project may involve planning, instruction, media processes, constituency building, or any of a variety of intervention strategies in the context of environmental/resource problems.

Students with a concentration in any of the Behavior and Environment options must meet the school-wide course-distribution requirements. In a few instances, these requirements have been augmented to help meet the goals of the common core.

Undergraduates who choose to concentrate in one of the Behavior and Environment options should register with the Counseling Office and with the Behavior and Environment Program Office. All undergraduate programs culminate in a Bachelor of Science Degree in Natural Resources. There are presently around 60 undergraduates in the Behavior and Environment Program at any one time.

MASTERS CURRICULUM IN BEHAVIOR & ENVIRONMENT

Roughly 35 graduate students majoring in Behavior and Environment are enrolled at SNR at any one time. About 25 of these are candidates for the M.S. degree in natural resources; the remaining students are enrolled in the Ph.D. program. Both degrees are offered through the Horace H. Rackham School of Graduate Studies.

Completion of the masters degree normally requires two years (four semesters of work). Approximately 12 new masters students are admitted each year, three in each program option. Admission is usually for the Fall semester (early September), but winter and summer admissions are possible.

To assure that some graduates will be able to work with particular constituencies, and that all graduates will be familiar with the perspectives of a wide range of constituencies, the faculty has adopted admission criteria that stress diversity of race, sex, and experience. In this way, each student brings to the Program a unique background and viewpoint that contribute to the education of other students.

Aside from diversity, masters students normally enter the program with an undergraduate average of "B" (3.0) or higher. A demonstrated commitment to the field and some real-world experience relevant to the field of study are considered desirable apart from undergraduate training. In addition, a basic foundation in five disciplines must usually be acquired either before or after entering the program: these consist of one course each in ecology, economics, political science, behavioral science, and research methods. These five courses are not normally counted toward the masters degree.

Because the admission process puts so much emphasis on what the applicant brings to the program that will contribute to the education of other students, applicants are encouraged whenever possible to visit the University and to talk with program faculty and students. A 1000 word "statement of intent," required as part of the SNR application, may also be used to describe what the student expects to contribute as well as what he or she expects to gain. In addition, all applicants are welcome to include papers, clippings, or other materials with their applications to help make the selection process less stereotyped.

Curricula in the four program options share several traits. First, all four options require a maximum of three courses in environmental science -- defined broadly to include resource and human ecology; resource and welfare economics; resource policy, management and law, etc. Second, all students take courses in theory and skills pertaining to their area of concentration. Third, all students participate in guided "real-world" work-study experiences as advocates, communicators, instructors, or outdoor recreation behaviorists. Fourth, all four program options attempt to generate a rich learning environment of informal seminars, non-credit workshops, films, visiting speakers, and the like, in which students are invited and expected to participate. In addition, SNR requires all masters students to take at least two courses outside SNR.

Most masters students complete a thesis or practicum while enrolled in the Behavior and Environment Program. The thesis program requirements include 30 credit hours of courses and work-study, and 6 credit hours of thesis, plus prerequisites that are completed after entering the program if deficiencies exist.

The individual program option curricula described below are open to modification. They constitute our current sense of what most students ought to do and are doing.

Environmental Advocacy. Advocacy prepares people to live and work as professional change-agents in resolving people-environment problems. The goal of environmental advocates is to reduce human and environmental exploitation and encourage more equitable and ecologically sound distributions of resources. To reach this goal, the program assists students in developing:

1. Expertise in ecological, political, economic, and social systems;

2. Theory and practice of intentional social change;

3. Behavioral skills in planning and implementing change programs;

4. Clear values and commitments on environmental, resource, and social problems.

To develop such competence, students are expected to participate in multidisciplinary analyses of people-environment interactions, and to make critical evaluations of the socio-economic system. Students also are expected to develop alternative goals and strategies for organizational, community, and societal change and to increase their practical experience through working on socio-environmental change projects.

Environmental Communications. Persons specializing in this area normally enter the program with competence in at least one of three disciplines: communications skills (writing, photography, graphics, broadcasting, etc.); communication theory (social psychology, systems, media processes, information sciences, etc.); or environmental sciences (ecology, resource policy and economics, etc.). The option attempts to build competence in all three disciplines to aid the student in becoming a proficient practical communicator on environmental topics. The overall goal of the option is to help people to better understand their environment and to learn to effect change of relevant publics vis-a-vis their environment, and thus contribute to environmental quality through communications.

Environmental Instruction. This option is designed to help students acquire greater knowledge and skills in developing, implementing, and evaluating environmental education programs in public and private school systems (K-12), youth organizations, para-schools, and other education-related organizations. Such instructional programs are normally aimed at: assisting the learner in analyzing and clarifying personal values concerning the environment; increasing the learner's interest and sensitivity toward the environment and its problems; and helping the learner develop social skills necessary to effectively activate channels toward change. The instruction option is designed to assist students to acquire the background to implement such programs.

Recreation & Behavior. Students enrolled in this option share with the faculty interests in problems such as (1) human responses to leisure environments, with special emphasis on the role of natural environments in well-being; (2) changes in preferences and sources of satisfaction as a function of increasing experience with recreation environments on one hand and of changes in the work and home environments on the other hand; (3) conceptual schemes for mediating part/visitor problems, carrying capacities, conflicting uses, antisocial behavior, etc; and (4) increasing the effectiveness of our decision process in the allocation of resources for recreation and park use.

In order to learn how to plan and manage outdoor recreation and park resources at the international, national, regional, and local levels, recreation and behavior students must integrate the lessons of diverse fields. Resource ecology and understanding of habitats and species in particular regions are essential to anticipate impact and vulnerability from human use. The tools of resource management and resource planning are equally vital to the management and planning of recreation areas. In addition, many students take courses in landscape architecture to gain a better understanding of design constraints, land use issues, and site planning. The behavioral perspective of the option further suggests that psychological and sociological expertise is essential to bring to bear in this far-reaching field.

DOCTORAL CURRICULUM IN BEHAVIOR & ENVIRONMENT

SNR offers a Ph.D. degree in natural resources through the Horace H. Rackham School of Graduate Studies. In theory, all doctoral students in SNR are "at large" and not associated with a particular program. Nevertheless, each prospective doctoral student must be endorsed by a faculty member who agrees to become that student's advisor; thereafter the student is informally associated with the program in which his or her advisor teaches. Behavior and Environment carries approximately ten doctoral students at a time, accepting only three or four per year for all four program options.

The Ph.D. degree is intended to be research-oriented rather than practice-oriented. It is designed to train scholars, researchers, and college teachers, rather than practitioners, in the areas of environmental advocacy, communication, instruction, and outdoor recreation, as well as other Behavior and Environment topics.

For those seriously committed to a scholarly career, the University of Michigan offers a supportive environment and superlative facilities. The University is one of the world's major research centers, with excellent libraries, laboratories, and computing equipment. Doctoral students specializing in Behavior and Environment are aided in their work by the research capabilities of the SNR faculty, the Institute for Social Research and other campus units.

The Rackham School requires all Ph.D. students to be in residence at the Ann Arbor campus for at least two semesters of at least eight credit hours each. In addition, Rackham requires each student to pay minimum fees totaling to two semesters of full-time coursework and three semesters of full-time dissertation research; an additional two semesters of course fees are required for students who enter doctoral programs without a masters degree.

Doctoral students in our program typically devote roughly four semesters to coursework, then write their dissertation proposals and form their candidacy committee. This committee oversees the student's preliminary examinations, which cover course mastery and preparation to undertake the proposed dissertation. When the student has passed the preliminary examinations, he or she is recommended for formal degree candidacy; this recommendation must be approved by the SNR Graduate Affairs Committee and by the Rackham School. After the dissertation is completed, an oral defense of the dissertation is the final requirement. The entire process usually takes three to four years.

The Future

In April 1982 a review of the School of Natural Resources was initiated as part of the University's Five Year Plan of retrenchment and reallocation. A committee was created to carry out the Review, and its report was submitted in December, 1982. The new mission and criteria of the School of Natural Resources is outlined below.

The mission of the School of Natural Resources is to provide leadership in the generation of knowledge and the development of professionals, policies, and management practices to manage and conserve natural and environmental resources so as to meet the full range of human needs on a sustainable basis.

To accomplish this mission, the activities of the School focus on:

1. the performance of research to define critical natural and environmental resource problems, develop an understanding of the structure and function of natural resource and social behavioral systems and how these systems interact to create resource problems and guide and constrain their resolution, and generate and evaluate management strategies for addressing these resource problems; and

2. an educational process that integrates knowledge derived from the School's ongoing research and other research in natural resources with basic social and natural sciences in curricula designed to transmit competence in chosen natural resource related specializations, while demonstrating the complex interactions between natural systems and human economic, political, and social systems.

The Transition Team will measure designs against two primary criteria:

1. the degree of focus on the School's mission; and

2. the degree to which a viable, high-quality school is maintained.

In order to meet either of the primary criteria, designs must:

1. be built around a versatile, multi-disciplinary expertise base;

2. effectively access relevant resources in other U-M units;

3. include curricula that emphasize and demonstrate the need for interdisciplinary approaches to problem-solving;

4. increase the support base for faculty research efforts, as well as the degree to which creative, scholarly productivity is recognized and rewarded;

5. retain the capability of offering strong degree programs at the undergraduate, master's and doctoral levels, while increasing the School's emphasis on graduate and professional education;

6. include a revised faculty performance evaluation process which encourages and rewards individual contributions toward achieving the School's mission, while emphasizing scholarly productivity and teaching excellence; and

7. consolidate and simplify the current administrative structure.

Interest Group: Governmental Organizations

EE Action, Federal Level

*Andrew S. Adams**

Dr. Adams described the mission and role of the Federal Interagency Committee on Education (FICE) and how it relates to the Congress for Environmental Education Futures. He said that FICE had a very active Subcommittee on Environmental Education that has been formulating policies and issues, conducting studies, coordinating programs in and out of government, and disseminating information on environmental education. He recommended that the Congress resolve to recognize the subcommittee as a focal point at the national level because of its membership from the key federal agencies concerned with environmental education.

Dr. Adams discussed the mission and organization of the Department of the Interior, and the environmental education interests of the various Interior bureaus. He mentioned examples of Interior environmental education activities, such as the Indian education program of the Bureau of Indian Affairs, educational programs conducted by the National Park Service and the Fish and Wildlife Service, the education program of the Trust Territories, the information distributed by the Bureau of Reclamation and the Geological Service, the conservation program by the Office of Youth Programs, and other Interior activities. He said that Interior recognizes that in its role of managing the Nation's natural resources, environmental education has a vital responsibility to our citizens, especially to the young who will be involved in making tomorrow's crucial decisions on the environment.

Dr. Adams referred to his experience as a public school teacher and administrator, including superintendent of the Kansas City Schools in Missouri, when he discussed environmental education in terms of the school curriculum. He said he would like to see courses established and called "environmental studies," along with the integration of environmental education into social studies, mathematics, science and related subjects. He continued that schools were not conducting near enough outdoor education programs where environmental education could be prioritized. He said that this would require close coordination with out-of-school resources and institutions at the local, state and national levels.

Dr. Adams concluded that the United States was entering into a critical period for environmental education issues as it enters the postindustrial era with limited economic and natural resources. He recommended that this First National Congress for Environmental Education Futures concentrate on assessing the "State of the Art," and propose some "hard" policies issues for general population and institutional consumption that would be followed up by a Second National Congress.

**Dr. Adams is a U.S. Department of the Interior representative to the Federal Interagency Committee on Education.*

Natural Resource and Environmental Education in the Forest Service

*Eddie Anderson**

The Forest Service has been in the business of assisting with public education for many years. This occurred first under the label of conservation education; later, under the name of environmental education; and more recently, under the title of natural resource and environmental education.

Much of the credit for the Forest Service Environmental Education Program is given to Region 6 with headquarters in Portland, Oregon. The developer of the "Investigating Your Environment Series" that we make us of is credited to Ernest C. McDonald. "Ernie," as we call him, is still with the Forest Service in Portland and is highly active as a developer and teacher of environmental education. He is progressive and innovative and has done much to see that the Forest Service improves internally as well as meets its responsibility for public resource and environmental education.

The earliest forerunner of the materials we now use that I've seen is contained in a package called, "Teacher's Forest Fire Prevention and Conservation Kit." In the early 1970's this material was developed into what we now know as the "Investigating Your Environment Series."

In a similar fashion, we have had staffers at the Washington Office level and at the Regional and Forest levels that have contributed greatly to the advancement of environmental education in the Forest Service. If I called all the names you would think I was campaigning for something. So I won't list them. However, the Forest Service in the past and present has been blessed with staff people who had a feel for and dedication to environmental education, as well as the talent to put the program on individually and in cooperation with others. We hope this blessing will continue.

Currently, we are in the throes of change. For the last year and a half, the program has been under revision, not so much as to revise program segments themselves but to provide program diversity and a framework for assisting our resource managers with an education program to help them accomplish many of their goals and objectives. We have not deleted anything from the program but have added a natural resource issues component, and have tried to clarify the objectives and directions of the program to better fit our needs. We are currently in the process of working out the details and schedules to implement this part of the program. There are already many expressed interests among individuals, institutions, and organizations who know of this development. It is these developments that I will talk about today.

The Forest Service has traditionally had good programs developmentally and conceptually. This is true of the environmental education program. However, we had reached a point when emphasis traditionally put on this program was dwindling. In August of 1991 the Regional Education Specialists and I met in Denver, Colorado for three days to review the situation and determine what could be done.

**Dr. Anderson is Coordinator, Natural Resources and Environmental Education Programs, U.S. Forest Service, USDA.*

With the help of a few background studies that had been made previously, and review of the current situation, it was determined that the program had not been implemented nationally in concurrence with Forest Service policy. It was also determined that the program did not fully address current objectives of emphasizing the potential productivity of forest resources or the role of the professional forest managers in achieving this potential productivity.

It was further concluded that there were a number of problems that contributed to the current state of affairs. These included:

1. Lack of central, clear direction to the field.

2. Lack of understanding on the part of the FS managers of what the program can do for them, resulting in a lack of commitment at all levels - WO, RO, FS, and RD.

3. Lack of support for environmental education in the Chief's messages.

4. Lack of information about program accomplishments, scope, and contributions.

5. Misunderstanding due to the broad definition of environmental education.

6. Program accomplishments are not tied to managerial performance.

7. Lack of relationship of program components to other Forest Service education components.

To counteract some of these problems, the group undertook to develop alternate program approaches. The most viable of these turned out to be to retain the existing program and add a natural resource issues focus and an agency audience. Thus, the new program emphasis was to retain the EE portion of the program as a component; improve the direction to and from the Regions and Forest levels; and improve the reporting system.

Objectives were developed to accompany the existing and added segments. Subsequent refinement of these led to the following three objectives that were incorporated into the draft manual directive.

1. Provide relevant information on natural resources to the public using appropriate education techniques.

2. Cooperate with educators and others to develop materials and methods to teach ecological, environmental, and conservational principles at a variety of age levels; and

3. Assist agency employees to better understand and more successfully communicate natural resource information to Forest Service audiences.

What was achieved from this process was a program with two component parts and a built-in mechanism for agency involvement, participation, and assistance.

1. The EE Component is designed to increase knowledge of resources and techniques appropriate for learning about them.

2. The natural resource issue component is designed to obtain public understanding of particular resource issues.

3. Involvement of In-Service personnel is as (a) subject-matter experts in issue material development; (b) testers and evaluators of the material and concepts; and (c) communicators of the results of this process to the public.

These features of the program together were designed to give resource managers guidance in meeting agency public education objectives.

Now, let me talk in some general detail about the content of the two basic components.

Natural Resources Issues. The purpose of this component is to help our audiences better understand the factors which influence natural resource issues so they can beneficially participate in formulating and evaluating potential solutions. Some characteristics of this component are:

1. The focus is on a clear, objective presentation of information about issues with ample opportunities for the public to discuss and analyze the data and to draw itw own conclusions.

2. The content and origin of issues selected may be local, Forest-wise, Regional or National in scope. Issues selected at the emerging stage often present the best opportunity for an educational program and can lead to public understanding and subsequent resolution prior to polarization on an issue. Some of the issues considered for development are the following:

   - Wilderness management
   - Ground water management
   - Wildlife management (grizzly bear, elk, etc.)
   - Multiple use of National Forest lands (resource production and allocation)
   - ORV (Off-Road Vehicle) use
   - Clearcutting
   - Minerals management
   - Animal species diversity and habitat development
   - Threatened and endangered species
   - Upland (or bottomland) hardwood management and production
   - Rights-of-way, land lines, title claims, trespass
   - Road management and construction
   - Firewood availability and cost
   - Cannabis
   - Riparian zone management
   - Fire management, including prescribed burning

3. The total range of target audiences includes agency people, members of the community, and others who may be affected by, or can affect, or have an interest in, the outcome of the issue. This includes urban, minority, and other publics not traditionally involved in resource management decisions.

Environmental Education. The purpose and long-range goal of this component is to prepare people to recognize their dependency on the environment and to accept the responsibility for its wise management. Environmental education gives people the tools and skills to make informed decisions about the world in which we live. Some characteristics of this component are:

1. Program focus is on understanding forest and rangeland resources and their management through investigations which are site specific, (example: watersheds, forests, animals, plants, and soils).

2. Program content, in addition to resource investigations, includes problem-solving techniques, developing local investigations, integrating EE into the school curriculum, planning EE workshops, conducting field trips and resident camps, and developing methods for investigating environmental issues.

Additional information relevant to the EE component includes the following topics by indicated category.

Forestry and Human Life

- Role of resource manager
- Role of resource worker
- Forest recreation
    - hunting
    - camping
    - solitude
    - hiking
    - fishing

Forest Management

- Ownership
- Silviculture
- Harvesting methods
- Machines
- Products from wood
- Landscape
- Fire Management

Water/Soils

- Quality
- Supply
- Soil stability
- Erosion control

Wildlife

- Population
- Habitat
- Harvest
- Endangered Species

Forest Science

- Properties of wood
- Chemicals
    - herbicides
    - pesticides
    - fertilizers
- Ecology
    - vegetation
    - mammals
    - birds
    - fishes

Trees

- Native
- Exotic
- Physiology
    - photosynthesis
    - respiration
    - transpiration
- Disease
- Pests
- Nursery operations
- Reforestation
- Growth
    - measurements
    - volume
    - density
    - height
- Environment
    - forest
    - community

3. Target audiences are usually those who can pass on the knowledge to others and include teachers, resource agency personnel, conservation organization members, and industry employees.

Education Futures, U.S. Fish and Wildlife Service

*Conley L. Moffett**

The U.S. Fish and Wildlife Service is a unique agency. Our mission, "To provide the Federal leadership to conserve, protect and enhance fish and wildlife and their habitats for the continuing benefit of people", does not adequately reflect that uniqueness. Our natural resource responsibilities vary from actions necessary to prevent plants and animals from becoming endangered or extinct to selected population control in reducing wildlife-caused damages. In between these two extremes, the Service is involved in habitat preservation, providing assistance to states and territories, and scientific information-gathering relating to such things as wetlands, wild life populations and environmental contaminants. In addition, we conduct the most comprehensive fish and wildlife related research of any nation.

Actual resource management takes place on more than 400 National Wildlife Refuges comprising approximately 88 million acres -- the most extensive system of managed lands for fish and wildlife in the world. Supplementing this effort are more than 70 National Fish Hatcheries dedicated to replenishing depleted populations of lake trout, anadromous and other fishes.

With this very brief glance, we can see boundless opportunities for fish and wildlife education in the Service. In the past, we have made significant contributions; and because of those successes, we are about to embark on another initiative to enhance our wildlife education programs.

Let me emphasize -- the initiative is new, not the philosophy. Our philosophy is well founded on the goals and objectives that emerged from the Tbilisi Conference. We believe our success will be based on certain fundamental concepts.

First, people must be encouraged to learn about ecosystems, to understand the relationships between all living organisms. Understanding basic ecological concepts is the foundation for knowing why problems exist. Simply put, something went wrong in the system. If people understand why problems exist,

---

**Mr. Moffett is Chief, Office of Public Use Management, U.S. Fish and Wildlife Service, U.S.D.I.*

they will better understand and accept why certain resource management decisions are made to solve the problems.

If we have been successful in getting people to understand resource management decisions based on ecological concepts, then maybe, just maybe, people will become involved in addressing problems and needs at the local level. Whether we want to admit it or not, the future does not rest with the rederal or state bureaucracies, but with the people and their resolve.

Why do we need an education program? Primarily because of our growing concerns about ever accelerating habitat destruction and environmental contamination. Intuitively, many of us believe that the fate of the Earth's wild creatures is linked to our own, if for no other reason than the fact that we share the basic requirements for life.

Many of the problems and doubts concerning wildlife are rooted in ignorance. We simply do not understand the complexities of nature well enough to predict what will happen. Most of our knowledge was gathered as a result of what has happened such as the impact of DDT on bald eagles, pelicans, fish and many other species. And we are not well enough informed about what is known to avoid unnecessary hysteria. We are constantly responding to half-truths.

It is clear that as a society, America cares deeply about its wildlife heritage. Our conservation example has generated crash programs to save wildlife on all the continents. Furthermore, our system of government guarantees free access to information and educational opportunities. This should provide the necessary foundation of understanding and continuing support for conservation efforts.

In short, our citizens have a right to know a good deal more about wildlife, and the U.S. Fish and Wildlife has an obligation to better inform and assist the educational process.

Historically, there is no question that wildlife awareness has figured prominently in the human survival equation. Thousands of years ago Stone Age cave painters gave us a moving record of their perceptions and aesthetic appreciation for wildlife. Just a century ago, most Americans were still living off the land on the American frontier. Up until very recently, wildlife lore -- essential for human survival -- was still being passed on to each generation through deliberate teaching and shared experience: stories, sports, song and dance.

But the last hundred years has brought sobering realizations and questions about the future. An apparently inverse relationship has existed between unplanned population growth/resource consumption and the natural diversity/environmental health that sustains wildlife and people. Early attempts to preserve isolated habitats and remnant populations were not entirely successful even though some species were brought back from near extinction. We find ourselves asking how people who are increasingly isolated from the Earth can learn to nurture it.

Environmental education has provided part of the answer, especially during the past decade. Simply defined, from the wildlife point of view, it is the process by which people learn to be good stewards -- to make decisions and take actions that favor survival. Wildlife education contributes to environmental literacy and conservation by helping people make enlightened decisions that perpetuate wildlife. As we learn to enhance natural diversity and productivity through resource management, we improve our own species' ultimate chances for survival.

Wildlife information and education activities have made positive contributions to both state and federal conservation programs for over 50 years. Key wildlife species are now universally recognized as symbols of national vitality or as indicators of environmental quality. Yet the potential for meaningful citizen involvement leading to awareness, favorable attitudes and action relative to wildlife conservation has not been seriously addressed.

Where does all of this leave us? We are in a situation that demands an educational process comprised of both formal and non-formal learning experiences that extend from infancy through adulthood. Schools simply are not equipped to handle this formidable job alone. We, as public servants, custodians of the nation's natural resources, have a responsibility for assisting the process.

In the Fish and Wildlife Service, we now have support to not only continue many of the on-going activities but to expand them. These include providing curriculum supplements, study units, resource information, teacher training, demonstration and learning sites on our field stations. We will continue to provide frameworks and incentives for horizontally linking subject areas while vertically reinforcing concepts at subsequent grade levels through wildlife study.

Major areas of new emphasis will be in research findings utilization, adult education and cooperation with others. Briefly, we intend to convert much of our research data into practical application. Much of it is of direct benefit in wildlife or environmental education. For example, when people think of oil pollution, they usually visualize oil spills and oil on the beach with its oily birds. One of the bigger questions lies with the oil drop. Research has shown that one drop of oil on the breast of a mallard will virtually destroy her clutch of eggs. The resource never had a chance to develop. The problem can be solved and the public needs to know. Research findings are developing faster than they are being converted into usable forms for the general public.

It is our intention to concentrate more on converting highly scientific information to practical application and use by the public.

We will continue to give a high priority to formal environmental education programs and will work with teachers and schools in developing new programs on emerging issues. Sixteen separate education units have been developed and will soon be available. More will be developed.

In addition, we plan to get more involved in adult education utilizing much of the information used in the traditional environmental education programs but geared to adult application. We are concerned about today's citizens as well as tomorrow's and feel that adults also need to be exposed to objective, truthful, non-biased information.

Another area that we intend to explore more deeply is cooperation with others -- other governmental agencies, private and professional organizations, citizens and special interest groups. We suffer to some extent from the same malady as others -- that is, sometimes we develop the attitude that no one can do the job but us. We, all of us, need to talk with others, cooperate with others, share our information and skills and forget about turf and self-serving objectives.

Until this is done we can forget about national strategies, national goals and objectives, national conferences and everything else along those lines. No one has a monopoly on knowledge or skills.

As professionals, as public educators, as servants of the people, we owe it to society as well as ourselves not to live in a system of dichotomies, but like all of nature, we must learn to live in harmony for the mutual benefit of each other.

Government Responsibility and EE

*Rudolph J. H. Schafer**

Education is constitutionally a state responsibility. All other governmental and non-governmental programs should therefore be viewed as supplementary and supportive of state activities.

Each state has its own policies and procedures for educational programs within its jurisdiction. Federal agencies and non-governmental agencies should respect these arrangements and deal with each state through appropriate channels, in most states in the State Department of Education.

With the authority for educational programs within its borders goes the responsibility that each state should make appropriate arrangements for environmental education programs. Such accommodations should include:

- Assignment of program responsibility. Ideally the state department of education should have basic responsibility for the school program and the Department of Natural Resources should provide technical and program assistance.

- Designation of one or more staff persons as full or part time environmental education staff coordinators.

- Allocation of adequate financial and human resources to enable departmental staff to develop and conduct an effective statewide

---

**Mr. Schafer is President, Western Regional Environmental Education Council.*

program which will provide for (1) staff development, (2) materials production and distribution, (3) a statewide information network, (4) a system for statewide program evaluation.

Environmental concerns do not respect state borders. A really effective national program should involve cooperation between the states so that regional and national goals may be established and energies coordinated toward their achievement. Should an Office of Environmental Education be re-established in the U.S. Department of Education, networking state programs and working on mutually agreed goals and objectives should be its number one priority and major function.

Since there is currently no indication of U. S. Department of Education involvement in environmental education, other ways and means of networking state programs should be explored. A major national non-governmental organization with active affiliates in each state could do the job. It is recommended that the National Wildlife Federation explore this possibility of setting up a national network of state programs and work with these agencies to develop and coordinate an effective national program.

The most promising regional network is the Western Regional Environmental Education Council which conducts regular meetings and activities involving the departments of education and the natural resources agencies of thirteen western states. In addition, WREEC has produced two programs of major national importance: Project Learning Tree and Project WILD. WREEC could well serve as a model for a national network.

Those of us involved in environmental education welcome the support of federal and state resource management agencies. Their program resources and technical expertise plus their advocacy for legislative and public support is essential to our success. In view of this, we would urge that every state or federal resources management agency include in its statement of purpose a declaration of support for formal school and informal public information and education programs, and that adequate personnel and resources be allocated for this purpose.

Four Points of Government — EE Interaction

*Thomas Levermann**

Today's environmental/conservation education efforts by governmental agencies must have better coordination. Dwindling budgets and reduced staffing make it mandatory that government, at every level, maintain closer, more effective working relationships.

**Mr. Levermann is Head, Education Relations, Soil Conservation Service, USDA, Washington, DC.*

Government has been, and, hopefully, will remain an active partner with formal and non-formal educators. Government agencies provide valuable resources to youth, civic, professional teacher organizations, and so on. Each government agency rightfully finds its own unique way to tell about the resources for which it has responsibility. But, how much new educational material need be produced...or, can we use many existing publications, slides, etc? Efficiency says, use what is available; self interest says, produce more.

At the national level, the Federal Interagency Committee on Education/Sub-Committee on Environmental Education (FICE/SEE), has developed better coordination among agencies, possibly reducing duplicate efforts in educational materials production.

FICE/SEE is now in the process of finding out exactly what materials and resources are available from federal agencies. We will circulate that information to FICE/SEE agencies, then to a broader audience. Agencies may find materials already available for use in their education activities. Certainly the pride of agency or personal authorship may be reduced, but in terms of a more efficient operation, using available resources is important.

My first point is, unless you can produce something really new, try to use already prepared materials before investing great sums of time and money into developing a "new" product.

Second, interrelate natural resource topics. If we, as professional resource people and educators, are truly committed to helping citizens become more aware and better informed, the length and breadth of natural and human interrelationships must be examined.

Education is aimed at producing citizens capable of making rational and informed decisions. Parochial views of resources will not aid in reaching that goal. We preach the interrelationship of the resources, but do we really practice that in our professional work? If not, are we being fair to the student? They must know how soil, water, plants and animals, etc., are all connected in the fragile web of life.

When citizens understand how complex the eco-system is, they will be better prepared to make positive environmental decisions. That should be a long-term goal of an organization's environmental education program.

Point three, start your education program in the early grades. Tradition dictates that environmental/conservation education studies begin in grades 4 or 5. That isn't based upon the intellect of the student, but the fact textbook publishers generally write agricultural-environmental copy into texts at those grades.

Agencies involved in environmental/conservation education should be looking at the entire grade spectrum. The lower elementary grades, K-3, is where the correct terms and environmental concepts could be introduced. Your efforts should be aimed at developing the students' environmental awareness.

The middle elementary school grades should be used for in-depth explorations of environmental topics. More "technical" information should be presented, compatable to the students and their abilities. As the students progress academically, the depth of studies can become greater and more intense. At graduation, students should have a fairly detailed understanding of resources and resource conservation. Why shouldn't environmental educators use all the years of formal schooling to inform and educate?

Creative information transfer requires the use of all academic subjects, including art, literature, photography, social studies, and so on. Enlightened educators will find ways to teach about the environment and natural resources using available materials and texts. The most exciting teaching involves hands-on experiences. That is a must!

Since educational efforts should build from one grade to the next, efforts should relate what is being taught in established program of studies. Avoid, if at all possible, the idea that what you are proposing is new. Reinforce the idea that your environmental/conservation education program supplements established materials and formal education efforts.

Point four, if your agency is a fence sitter when it comes to a firm commitment toward environmental/conservation education, working with educators can be viewed as another form of public information...but reaching a very specialized audience. The audience you reach will become the landowners, Senators, farmers, mechanics, agronomists, and landuse planners of the future. They also become the voters. Working in education is investing in the future of the country.

Those of us in environmental education play an important role in preparing our youth for living and working in the years ahead. Just as the educators of 30 years ago are seeing the results of their efforts through the activities of our generation, we will, in a few years, see the results of our efforts.

A nation with intolerable amounts of erosion, polluted water, indiscriminate use of chemicals, improper waste disposal, unhealthy air, and so on, could be our resource legacy. Is that something you can be proud of? Is that something your agency wants to be remembered by?

Our efforts in environmental/conservation education are a miniscule part of the total agency or department budget. But our mission is as important as any other in the system. We must be more effective in our efforts and we can be IF, as concerned citizens and dedicated educators, we want to be effective.

Certainly you and your agency want a better future. Investing in education today is one way to assure that. You will be helping prepare a more enlightened citizenry. You will be sending a more understanding group to face the uncertainties of the future. You will be helping prepare the next generation to the realities of an increasing complex society with the benefit of environmental/conservation knowledge and experience.

Our effectiveness as a group and YOUR effectiveness as an educator and a representative of a government agency, rests with the students of today, the citizens of the future.

The future indeed is ours. Those we touch today will determine it. What kind of future do you want?

Interest Group: Industry/Business

Energy Source Education Program — A Partnership Approach That Works!

*Beth A. Johnson**

The Energy Source Education Program is a unique education/industry partnership initiated in 1979 by Westinghouse Electric Corporation to meet the need for a comprehensive, high-quality education curriculum for kindergarten through high school students. Numerous major industry sponsors helped fund the $1,000,000 development costs of the teaching materials, which have been reviewed from the start by several national education organizations including:

American Federation of Teachers
Joint Council for Economic Education
National Council for the Social Studies
National Education Association
National Parent Teachers Association
National Science Teachers Association

EDS, Energex, a well-qualified educational development firm, was selected to develop the materials. A management team from Atlantic Richfield Company, San Diego Gas & Electric and Westinghouse Electric Corporation was organized to oversee program development and an advisory council was formed from both industry and education to review the materials at all stages of development.

The Energy Source Education Program consists of seven instructional units. During development, all instructional units were field tested in schools throughout the nation. Field test results showed consistently high levels of pupil achievement. Pupils participating in the field test reported they liked the units and enjoyed learning about energy. Field test teachers considered the units objective and effective and were eager to use them again.[1]

Each unit is designed to be self-contained, yet is a part of a carefully formulated sequential framework. Each unit addresses specific learning objectives which cover a wide range of energy topics and issues including:

- energy use and supply
- current and future energy sources
- conservation in all sectors
- political, economic and environmental issues

The Energy Source program is distributed primarily through private-sector sponsors who provide materials to schools at no cost. In areas where no sponsors exist, schools may purchase their own materials.

---

[1] See the January 1983 issue of Science and Children or the Fall 1982 issue of Electric Perspectives for published reports on program development and field testing.

Ms. Johnson is Educational Program Consultant, Westinghouse Electric Corp., Pittsburgh, PA.

The Energy Source Education Council was incorporated in 1982 as a national nonprofit 501(c)(3) corporation to oversee the implementation of the Energy Source Program; ensure the continuing quality and objectivity of the curriculum materials, and support teachers using the materials. Organizations who sponsor the program in local schools become members of the national Council. Local Energy Source Education Councils have been formed in Dallas, Houston, Pennsylvania, and Southern California, with new Councils planned in Louisiana and Alaska.

During the 1982-1983 school year, nearly a half-million students across the nation learned about energy with the Energy Source Education Program. The figure is expected to double in the 1983-84 school year. Large-scale implementations are underway in each of the above Councils, as well as planned in parts of Alabama, Connecticut, Kentucky, Massachusetts, Minnesota, Mississippi, New Jersey, New York, Tennessee and Wisconsin.

Education Program, American Forest Institute

*June McSwain**

American Forest Institute (AFI) is the information and educational organization for the wood products companies that grow and harvest trees and manufacture products from wood. The association does no lobbying. The basic messages of the Institute are the importance of the forest resource to society, who owns the resource, how it is managed, and its many uses.

AFI has informational services for the press, private non-industrial landowners, those who work with youth and forest industry supporters. The program directed toward those who work with youth has three parts.

A small inventory of titles is available in response to educators and others who work with youth, who write the Institute for information on the forest resource. In addition, AFI's education director is involved in professional and conservation organizations as a participating member in order to keep abreast of the latest materials and innovators in education, particularly environmental education, and to work with other organizations in developing materials that encourage a balanced approach to learning about our environment.

AFI's major effort with those who work with youth is the cosponsorship of the supplementary, interdisciplinary program for youth in kindergarten through grade 12 entitled Project Learning Tree (PLT). The program was developed and is implemented at the national level in cooperation with the

---

**Ms. McSwain is Director of Education, American Forest Institute, Washington, DC.*

Western Regional Environmental Education Council (WREEC), a network of state environmental educators from 13 western state departments of education and resource agencies. The program is governed by an advisory council with membership from education, industry and conservation organizations.

The goals of Project Learning Tree are to prepare kindergarten through high school young people for informed and responsible decision-making concerning natural resources and human use and management of those resources and the environment; to enhance and strengthen all elements of the regular curriculum by offering those who work with youth a selection of supplementary, environmental education activities for use in the classroom or with youth-oriented organizations; and to improve and enrich education about natural resources and the environment through cooperative support of a community of educators, private industry, resource agencies and private conservation organizations nationally and in the states.

Project Learning Tree's materials are activity-based for use by teachers, youth group leaders, outdoor educators and others who work with young people. The activities were written by classroom teachers, curriculum supervisors, college professors, forest products industry personnel, federal/state resource agency personnel, state department of education personnel and members of conservation organizations, after they developed the conceptual basis for the program. The materials are made available only through workshops which are coordinated on a statewide basis usually with the department of education and a committee of environmental educators from within the state. A staff of educators on contract to AFI coordinates this activity.

The program provides additional support materials for the state leaders in two to two-and-one-half day workshops as well as the participants they reach in six to eight hour workshop sessions. These include a workshop handbook to help in developing workshop programs and a ten minute film on the conceptual basis of the program to support workshop leaders; and a newsletter, the BRANCH, for all participants, providing suggestions for adapting PLT activities for various situations and of additional resources to support the teaching of environmental education. In addition, a conference of state coordinators has been held to assist in guiding the program's future direction.

Evaluation of the program is carried out on a continuing basis. Each participant is asked to evaluate his/her experience in the workshops as are the leaders who present the program. Several surveys have been made of participants to determine their use of the program with youth, and some studies have been made of the impact of the activities on student learning.

Currently there are 33 states involved in the program reaching over 60,000 participants since implementation began in 1976. Using results of the survey of use, it can be estimated that these participants are reaching approximately 2.3 million youth each year with PLT activities.

Both AFI and WREEC view PLT as a continuing, evolving program to assist those who reach young people in our country in developing awareness, knowledge and the skills necessary for making reasoned decisions regarding the forest resource and the environment.

Learning by Design: The AIA Environmental Education Program

*Alan R. Sandler**

Architects and Environmental Education

Architecture is only one of the many forces affecting the environment, but it is one of the most important. Today's architects are concerned with environmental education because they are concerned with achieving and preserving quality in the environment. For this to happen on a meaningful scale in the United States, there must be a widespread public expectation and demand for quality in the environment.

Aware citizens can make better choices. They require buildings designed to a human scale, streets designed for safety, furniture designed to fit the human body, classrooms designed for learning, parks designed for rest and recreation, and public buildings designed to express the values of the community.

This human-designed environment is the architect's particular area of domain. What is built, why it is built and where it is built are all a part of the profession's responsibility. The architect, in collaboration with the client, strives to achieve an architecture of consequence. Architecture has a personal and often dramatic effect on everyone. The architect relies on the public's participation and interest in the design process, for it is that interest that stimulates the architect to achieve work of significance. The public should be an educated participant.

No other art form so completely pervades our daily lives. We live, work, study and play in our buildings. Our surroundings affect our moods and temperaments; certain buildings, parks, plazas and streets lift our spirits, others diminish them. If we are to influence our architecture--and its lasting effects--we must embark on a strong and pervasive environmental education effort.

Role of The American Institute of Architects

The American Institute of Architects (AIA) is the national organization of the architectural profession, established in 1857. The AIA fulfills the basic goals of maintaining the standards and competence of architects. The following statement from its Bylaws gives clear expression of the ideals of the profession:

> "The objects of The American Institute of Architects shall be to organize and unite in fellowship the architects of the United States of America; to combine their efforts so as to promote the esthetic, scientific, and practical efficiency of the profession and building industry by advancing the standards of architectural education, training, and practice; to coordinate the building

---

**Mr. Sandler is Director, Public Education, The American Institute of Architects, Washington, DC.*

industry and the profession of architecture to insure the advancement of the living standards of our own people through their improved environment; and to make the profession of ever-increasing service to society."

Membership in the AIA is open to every architect licensed to practice in the United States. Currently, the membership of the AIA is composed of approximately 30,000 licensed architects in over 200 local chapters. The Institute's national office is in Washington, D.C.

Since 1966, the AIA has been involved in environmental education--working on the national level to help clarify issues and develop methods and materials for raising the public consciousness of this vital issue. The AIA has been instrumental in providing the general public--and especially school-age children who will become decision-makers as adults--with a better understanding of the factors that influence the nature of its physical surroundings. Our objective has been a thoughtful citizenry, equipped with skills and values, taking reasoned action necessary to shape cities, towns and countrysides into better places to live, and remaining active in efforts to ensure that these will continue to be better places in the future. That is why architects, both individually and collectively, have supported environmental education and have become activists deeply involved in environmental education. Participants have taken many roles: legislative activists, theorists, consultants, architect/educators, community workshop organizers and civic speakers.

The group within the AIA that carries on this task has been known variously as the Task Force on Primary and Secondary Education, the Elementary and Secondary Education Committee, the Environmental Education Committee and most recently, the Public Education Committee. Its primary objective has not altered: "To create an awareness of and concern for the human-designed environment as it relates to the total environment among all education sectors, pre-kindergarten through adult education."

In this role of environmental education catalyst, the AIA has developed several resources and services through the efforts of this committee. Informational materials for teachers introduced the need for integrating human-designed environmental concerns into the classroom. Information bibliographies were developed, with the first in 1970. Active support of effective legislation establishing environmental education at both the federal and state levels has been pursued.

Then, in 1980, the AIA conducted a survey to determine the needs of the education community in environmental education. Over 900 persons were contacted throughout the country, including state environmental education coordinators, primary and secondary school teachers, education administrators, graduate faculty of architecture and education, textbook publishers, representatives of nonformal education sectors--including television, children's magazines and museums--AIA components and Public Education Committee members. The overall response rate across all sectors of the survey was more than 50 percent.

The most significant findings of the survey indicated the critical need for access to high quality environmental education resource material, particularly instructional and activity guides, and training that would demonstrate how to integrate human-designed environmental education into existing curricula.

Faced with these findings and determined to meet these needs, the AIA Public Education Committee embarked upon an intensive period of planning which included consultation with professional representatives from the formal and nonformal education sectors. What emerged from these discussions was the structure of a system of interrelated material resources, the mechanisms for delivering these components and, perhaps most important of all, a conceptual framework--the basic notions--upon which the program would rest. The program has been entitled "Learning by Design" and surpasses all previous AIA environmental education activities, both in scope and in substance. The ultimate goal of this program is for every student to develop the ability to live in harmony with the natural environment and the skills to design a quality human environment.

Interest Group: Youth Organizations

Elliott Wildlife Values Project, Girl Scouts of the U.S.A.

*Carolyn L. Kennedy**

Introduction

The Elliott Wildlife Values Project of Girl Scouts of the U.S.A. represents the dreams of the late Herford N. Elliott of Massachusetts to shape the attitudes of the nation's youth toward wildlife. This project, aimed at helping youth to appreciate and preserve the nation's wildlife, is the current vehicle for the Girl Scout organization's environmental education thrust. Endangered species, predator control, loss of wildlife habitat, and the harmful effects of acid rain are among the environmental issues explored during project-sponsored workshops. We have been involved in writing materials and presenting workshops across the country.

When the Project began six years ago, the Girl Scout organization was in the process of redesigning the structure of our program for girls. New publications, published during the last five years, encourage girls to learn about ecology, wildlife, and environmental education along with everything else from computers to the arts and physical well-being.

Local Girl Scout councils are also urged to set aside part of their lands as wildlife sanctuaries where girls can be a part of the decision making process while designing suitable wildlife management, erosion control, and educational projects.

In addition, the Project staff have written supplementary guides to help leaders and girls explore the natural environment in their home communities, as well as at our National Centers.

We now have a new conference center just north of New York City where we are providing courses for Girl Scout troop leaders, council staff and volunteers. At another of our National Centers in Wyoming, the Wildlife Project provides a two-week course each summer.

Teams comprised of one Senior Girl Scout and one adult from a council meet at Girl Scout National Center West in Wyoming for a 12-day period. The arid environment of Wyoming has a very different combination of wildlife and plants than the far corners of the U.S. from which the participants come. The Elliott Wildlife Room at the Visitors Center orients all new comers to the inhabitants of the site. The participants learn to map and inventory a site for its wildlife and wildlife habitat, as they will do at their own council sites on their return home. They learn how to identify the plants and animals they see by noting the smell, shape, size, behavior and clues left behind like skeletons and footprints.

Aquatic habitats provide opportunities to learn how to monitor water quality and assess the health of the aquatic wildlife community as well as

---

**Ms. Kennedy is Director of the Elliott Wildlife Values Project, G.S.A., New York, NY.*

seeing "live" all those creatures once studied in a biology textbook. They see a direct application of the aquatic studies when they visit the Ten Sleep Fish Hatchery and Rearing Station, where the state of Wyoming raises millions of trout for recreational fishing enthusiasts. Other careers are explored as they discuss with forest fire spotters and wildlife researchers the job opportunities available to those with an interest in wildlife.

While exploring the rugged canyons and mesas of National Center West they become atuned to the relationships between topography, geology and climate that make each section of the U.S.A. so unique. In the process they learn techniques for involving groups of Girl Scouts in their home communities in similar explorations.

During the final two days of the course they plan the details of a project which they will carry out at home in the following year. They learn to test the reality of their plans against their own time and skills as they plan a project which will encourage girls in their council to learn to appreciate and preserve wildlife.

During the last several years we have also traveled from New York to California to North Carolina to Hawaii to provide wildlife workshops for Girl Scout leaders and girls who are of high school age.

To piggy-back on Noel Brown's comments to us on Friday evening, we found a very interesting mixture of environmental problems and ecological patterns in the tourist mecca, Hawaii. During our stay there we found not only the tourists, but most of the residents, to be environmentally unaware.

The Hawaiian Islands are located 2500 miles from the nearest continent. During the past 150 years, human activities have caused an alarming rate of species extinction. Wildlife habitat destruction and the introduction of many non-native species of wildlife and plants have had a severe impact on the native species. Early explorers introduced sheep, cattle, horses, and goats. The native people were not permitted to hunt for any of these animals. In the absence of hunting, natural predators and diseases, those feral animals multiplied quickly and in great numbers. Overgrazing and hoof damage totally denuded the land. With the loss of vegetation, native birds lost critical habitat necessary for food, water, and shelter. Twenty-four species of birds have become extinct and another 27 are recorded as endangered by the United States Fish and Wildlife Service. Hawaii, today, is a land of contrasts with development backing into wildlands. At the present time, the development of residential and tourist facilities means lost habitat for pond and marsh birds. The numbers of ducks and shorebirds migrating through the Islands have declined for lack of suitable places to rest and feed.

The Girl Scout Council of Pacific invited the Project staff to do a series of wildlife workshops so that the Girl Scouts throughout the Islands would learn to appreciate and preserve the unique wildlife of the Islands. The workshop in a camp setting served 40 girls and adults including two adults from Guam and three from American Samoa. Activities included a series of exercises to atune them to the wildlife happenings around them.

Teaching about wildlife through games was both educational and fun. The Project Director created a game called "Populate an Island" which was especially fitting. Since Hawaii is located so far from any continental land mass, the earliest creatures to reach the Islands came by flying, swimming or floating. Tiny seeds were borne great distances by the winds of the upper atmosphere. Seeds were also transported on the feathers or feet of birds.

Using the yellow tape to represent a land boundary and the grass enclosed as the ocean, the challenge was to populate the islands simulated by the stool, an inverted garbage can, cups, and plates. Each team was given ten coded beans and instructed to populate the islands from outside the boundary with these "germs of life." The competition was intense and within twenty minutes creative use was made of the materials at hand. Teams used string to simulate air or water currents. The players on opposite ends of the strings guided their "germs of life" to an island and deposited them successfully. Two teams created boats to simulate the arrival of the early Polynesians with their domestic animals. The game, "Populate an Island," stimulated many discussions about the uniqueness of island wildlife. The plants and animals that originally populated the Hawaiian Islands arrived by chance after traveling long distances. Hawaii lacks native amphibians and reptiles, for example, because those creatures could not cross vast oceans.

On the third day of the workshop the group did a field study of the marine environment. They used field testing equipment and data sheets to record their findings. Each person made notes about the plants and animals found in tide pool area and about the human impact on the environment. Despite island living, very few participants had ever taken part in an aquatic study. Everything was new and exciting. Participants found sea cucumbers and crabs but noted the relatively few number of species in these warm tropical waters. All observations were carefully noted and members of the group compared findings upon the return to camp.

This workshop concluded with a simulation activity for making decisions about coastal development and wildlife values. The outcome of the simulation was the realization that individuals could have a voice in environmental decision-making and the future of wildlife in Hawaii.

We have also used the excitement of sailing aboard a tall ship to incorporate environmental concerns and wildlife awareness into a marine education experience. One of the highlights of an event called "Wildlife and Windjammers," held last June along the east coast, was a waterfront festival held at the South Street Seaport Museum in New York City. At this busy pier in the East River, Girl Scouts from New York City spent the afternoon learning how to be safe near water and aboard boats. The participating leaders taught them how to "read a fish" that is, how to tell where a fish lives and what it eats by the size, shape, color and position of its body parts. For many girls and their leaders who had never held a fish before, this was a new learning experience! How does it feel? Does it have teeth? Why does it have two eyes on one side and none on the other? Lots of learning occurred among many giggles and squeals!

Throughout the country, Girl Scout councils, troops, and camps are making our younger generation aware of our environmental problems, giving them first-hand experiences, and the training necessary to make this generation the problem-solvers of tomorrow!

General Session: Resolutions

Resolutions introduced, debated and passed from the floor on August 16, 1983, 4:10 - 6:35 p.m.

1. ARNOLD MAYHEE

Be it resolved, That as environmental educators, we recognize that we are environmental ambassadors who speak for nature.

2. E. A. MAKEY

Whereas, Effective environmental education is vital for the students in all public and private educational programs; therefore,

Be it resolved, That citizens should have governments that formally recognize the necessity and RIGHT of all to a balanced and healthy environment in which to live, work, play and recreate.

3. DR. ANDREW ADAMS

Be it resolved, That since the Office of Environmental Education in the U.S. Department of Education has been eliminated, the First National Congress for Environmental Education Futures: Policies and Practices recognizes the important role of the Environmental Education Subcommittee of the Federal Interagency Committee on Education (FICE/SEE) for providing a focal point on the national level among the Federal agencies and the non-Federal, national, State and local organizations, agencies and groups concerned with environmental education.

4. DR. ANDREW ADAMS

Be it resolved, That it is the desire of this Congress to stress the need to make environmental education programs and activities accessible to persons with disabilities to the fullest extent possible.

5. TALBERT SPENCE (for A.N.S.S.)

Whereas, The human species is fully dependent on a healthy and diverse natural environment; and

Whereas, The activities of humankind have degraded that environment and reduced natural diversity and continue to do so at an increasing rate; and

Whereas, Education in and about the environment (both natural and human modified) is the only way to ensure a livable world for the immediate and long range future; therefore,

Be it resolved, That the delegates assembled at the First National Congress for Environmental Education Futures: Policies and Practices, Burlington, Vermont, August 12-17, 1983:

A. Call upon the environmental, scientific, and educational community at all levels of American society, to pursue diligently courses of action designed to bring comprehensive and high quality environmental education to all persons.

B. Strongly recommend that our schools, both public and private, integrate environmental education in curricula at every level as a top priority in the process of revitalizing American education.

C. Call upon all citizens, organizations and thoughtful individuals everywhere to cooperate in this vital task by creating and strengthening all useful linkages in a network of volunteer and professional resources, the purpose to be the achievement of our common goal - a citizenry informed and motivated to behave and live in ways which will enhance our environment, preserve our resources, and provide a life of quality, beauty, and fulfillment for all - now and in the future.

6. NANCY WOLF

Whereas, Large numbers of environmental educators live and work in urban areas; and

Whereas, Approximately 80 percent of the American people live in Metropolitan areas; and

Whereas, The teaching of environmental concepts and skills is particularly significant in light of special urban problems; and

Whereas, The understanding of basic environmental relationships is essential for wise urban decisions, as well as rural ones; therefore,

Be it resolved, That this Congress recognizes the importance of urban environmental education, including the examination of the natural, the built, the cultural and the historic environments within the framework of environmental education in the United States; and further,

Be it resolved, That the committees established to carry on the work of the Congress be charged with a mandate to consider urban environmental education in all aspects of their professional endeavors.

7. JOHN HEWSTON

Whereas, Education about the environment is basic to understanding the world; and

Whereas, Education about the environment is necessary for informed participation in a democratic society and productive work in a modern age of information; and

Whereas, There is evidence of a growing decline in support of and commitment to pre-college environmental education in the United States while other nations are placing heavy emphasis on environment and education at all levels; therefore, Be it resolved by the First National Congress for Environmental Education Futures: Policies and Practices, That all public and private schools in the United States be urged to provide, within a balanced curriculum, a major and uninterrupted program of education which shall include regular instruction about the environment for all pupils from pre-school through grade twelve.

8. BILL NIETER

Whereas, the majority of participants in the First National Congress for Environmental Education Futures: Policies and Practices agree that the maintenance and insurance of world peace is the most essential pre-condition for the development of a healthy environment; therefore,

Be it resolved, That this Congress urges all nations with the capacity to manufacture nuclear arms to work through negotiation toward the reduction and eventual elimination of nuclear weapons; further,

Be it resolved, That since militarism and high levels of world armaments production are the most significant drains on natural, social and educational resources, that all nations abandon war as a mechanism of conflict resolution and that they enter into a process that will establish an environment of peace and justice; further,

Be it resolved, That a copy of the proceedings of this Congress, including this resolution, should be sent to the President of the United States, the Premier of the Soviet Union, and the Director of the United Nations Environment Program.

9. JEFF HALL

Be it resolved, That Congress participants are aware of the importance of and shall work to promote and accommodate international environmental education efforts, programs and projects.

10. MARTHA MONROE

Whereas, We recognize the current need and trend to improve and update science education and its support materials, and address the mandate of quality basic education currently sweeping our nation; therefore,

Be it resolved, That while environmental education is interdisciplinary this Congress supports the coordination of environmental education and science education to further the goals of both; and further,

Be it resolved, That the Congress encourages the continued cooperation between educators and industry in the production of well-balanced, impartial and thorough science and environmental curriculum materials and projects.

11. GUS MEDINA

Be it resolved, That Congress participants express their appreciation to the University of Vermont and the local organizers for hosting this Congress.

12. RICHARD WILKE

Be it resolved, That Congress participants express their appreciation to the Alliance for Environmental Education for coordinating this Congress, to the Conservation Education Association and the American Nature Study Society for sponsoring the Congress, and to all co-sponsors for their support.

13. DUANE KELLY

Be it resolved, That in the perspective of global environmental education issues, this Congress urges all educational organizations to acquaint themselves with the ecological impacts of nuclear war and implement appropriate curricula relative to this issue in our formal and non-formal educational systems.

14. DUANE KELLY

Be it resolved, That it is the opinion of this Congress that environmental problem solving attempts which do not address the effects of continual human population growth can only result in no solution and increased problems.

15. DR. WILLIAM STAPP

Whereas, Congress participants have met to identify and debate policy needed to guide the future of environmental education; and

Whereas, Participants have actively experienced a wide variety of state-of-the-art practices in the field of environmental education; and

Whereas, The participants have reached concensus on needed policy and examined and synthesized future practices in environmental education; therefore, Be it resolved,

A. That a committee be established to oversee the development of an action plan to carry on the work and implement the recommendations of this Congress.

B. That the Congress Coordinator and the Program Chair of the First National Congress on Environmental Education Futures: Policies and Practices be selected to co-chair the committee.

C. That each of the Congress sponsors, co-sponsors and six Policy Track groups be invited to select a representative to serve as the committee, and that the chairpersons invite at least four persons from the Practices Track to serve on the committee.

D. That within 90 days of the close of this Congress, the committee synthesize Policy Track recommendations to produce a list of policy statements that reflect the consensus of this Congress. This list shall be shown to members of each Policy Track Group for comment.

E. That within 90 days, the committee also prepare an action plan for continuing the work of the Congress and implementing Congress recommendations. This plan shall be reviewed by Congress sponsors, co-sponsors and Track representatives to elicit comments on practicality and on the adequacy of the synthesis of Congress intentions. The plan will include a mechanism for establishing a permanent committee to oversee the implementation of the plan and for evaluating progress towards achieving the intents of the Congress as reflected in the goals and objectives of the plan.

Resolutions referred to further action:

16. MARC BRESAV

Be it resolved, That this Congress recognizes the media, particularly the news media, as a potentially powerful environmental education tool and recommends that environmental education professionals and organizations make greater use of this tool. (Referred to the Policy Track Groups.)

17. DR. ANDREW ADAMS

Be it resolved, That another Congress be called next year. (Referred to the Alliance for Environmental Education.)

General Session: Recommendations

Index to Recommendations

PAGE

I. EE Centers

1. Independent National Center for EE 107
2. National Demonstration Area and Regional Areas for EE . . . 109
3. Network of Regional EE Centers 110

II. EE Literacy

4. Implementing Tbilisi Goals 112
5. Citizen Political Action 112
6. Citizen Participation 113
7. Citizen Literacy 114
8. Informal and Formal EE Community Links 114
9. Exploring Environmentally Sound Lifestyles 115
10. Competencies and Accreditation for Teachers 116
11. Framework for Teacher Pre- and In-Service Training 117
12. Leadership Training for EE 118
13. Local-level Teacher Involvement 120
14. Academic EE Programs: Internships 121
15. Outside Linkages 122
16. General Education 123
17. Administration of College Environmental Programs 123
18. Studies of the Built Environment in EE Programs 124

III. EE Networking

19. Strengthening the Alliance for Environmental Education . . 125
20. AEE Links with FICE 126
21. Broadening AEE Membership Base 126
22. Office for the Alliance for Environmental Education. . . . 127
23. State/Federal Networking 127
24. AEE Role in Linking Youth Organizations and FICE 128
25. National Network for EE 128
26. Professional Environmental Studies Organization. 129
27. Working Conference for EE in Higher Education 130
28. State Responsibility for EE 131
29. Nonformal EE for Youth 134
30. EE Educators Coalition 135
31. Business/Industry/Labor Network 136

IV. EE Support

32. Electronic Network for Research 137
33. Information and Dissemination Systems 138
34. Dissemination to Teachers 140
35. The Media 140
36. Workshops on Funding 141

Recommendations from Interest Groups

Editor's Note:

Before the convening of the First National Congress for Environmental Education, those who preregistered for the Policy Track were sent From Ought to Action in Environmental Education for review and study. The sixteen recommendations in that document, developed in 1978, provided a common base from which to begin discussion in the working groups.

The six working groups within the Policies Track were also based on organizational similarities. A problem-solving sequence developed by Lynn Hodges was used in each work group by the facilitator. This model, based on force field theory, was distributed as a set of questions on a worksheet to the facilitators in their day-long pre-Congress training session.

Because each Interest Group worked from both a common base and common methodology, their final recommendations ALL dealt in some manner with similar plans and elements of strategies to achieve what each deemed important in furthering EE.

Overlaps and similarities among group documents were clear during the day-long oral reporting. Resolution 5 from the floor that day called for an editorial committee to synthesize all recommendations into a common list. To make the report more readable, the editors have pulled the recommendations together under common headings and have combined insights from all groups that dealt with a particular heading.

Every Interest Group - youth-oriented organizations, non-governmental groups, citizen organizations, elementary/secondary education, higher education, government, industry/business and labor-dealt with one common plan or strategy: the formation of a National Center and Regional Demonstration Centers for Environmental Education. These concepts are presented under the heading: I. EE Centers.

Other headings are II. EE Literacy: targeting audiences and programs in reference to changes occurring in the EE community; III. EE Networking: suggestions for strengthening both institutional and communications arrangements; and IV. EE Support: including information, dissemination and electronics interactions to support EE organizations and programs.

Care has been taken to include all viewpoints. Although some of the elements of related recommendations are duplicated from one to another, each of the following recommendations approaches the issue being addressed from a somewhat different perspective. It is the intent and plan of the Congress organizers that all organizations and agencies involved in environmental education will use this as a "working document," a base from which to develop specific action plans suited for the particular circumstances of time and place, resources and need.

I. Environmental Education Centers

Every group dealt in some way with formation of some form of National Center for Environmental Education. The major shift from prior views of the nature of such a center was that it should be non-governmental rather than governmental in structure, although Federal agencies should be invited to participate in discussions and cooperate with such a center.

RECOMMENDATION 1: AN INDEPENDENT NATIONAL CENTER FOR ENVIRONMENTAL EDUCATION SHOULD BE ESTABLISHED THROUGH THE COORDINATING EFFORTS OF THE ALLIANCE FOR ENVIRONMENTAL EDUCATION, IN ORDER TO PROMOTE EE TRAINING, RESEARCH AND COMMUNICATION WHICH INVOLVES THE VARIOUS GROUPS CONCERNED WITH ENVIRONMENT, TO:

Promote cooperation and communication among professional organizations and associations, government agencies, business, labor, citizen groups, and the research and education communities.

Serve as a clearinghouse and information dissemination center on environmental education, training and communication.

Promote and participate in, and be supportive of, local, national and international networks.

Monitor and communicate progress and activity in EE, training, research and communication.

Provide current status feedback to its network on achievements and needs.

Undertake appropriate action (i.e., publications, programs, conferences, seminars, and legislation) to promote the development and implementation of EE training and communication locally, regionally, nationally and internationally.

Assist in gaining financial and policy support of environmental education.

Serve as a mechanism for public participation in understanding environmental decision-making.

Serve as a referral center and repository for environmental education materials and information.

Establish a communications network with teacher centers, state and local education systems, non-governmental organizations, and business/industrial organizations involved in environmental education.

Serve as a forum for environmental policy development, issues identification and educational strategies formulation.

Conduct educational research, instructional materials development, testing and evaluation, and similar supportive activities for environmental education.

Conduct teacher/youth-leader training activities in environmental education including the validation of programs developed by others.

Assist in planning for environmental education research and development.

Encourage public accessibility to usable public and private land sites for environmental education activities.

The Center should give first priority to promoting and supporting the efforts of existing local, regional, national and international operations which are carrying out aspects of the above items. Networking and catalytic action should be the Center's first order of effort. However, where more direct leadership and action are essential to its mandate, the Center should move to galvanize action by the environmentally concerned community.

The Center should have a core staff of full-time individuals from scientific, research, resource-based and other representative Federal agencies, non-governmental organizations, state and local government, business and industry. Opportunities will be afforded part-time and/or short term staff participation as needed to conduct projects and other Center activities.

The Center should have access to modern computing facilities and library retrieval services. Information compiled by the Center should be available in print form and through subscription by other computing and referencing systems.

Targets: Representative Federal agencies, Subcommittee on Environmental Education (SEE) of the Federal Interagency Committee on Education (FICE), Alliance for EE, the Secretary of Education, the Council of Chief State School Officers, and the National Association of Manufacturers.

All federal and state offices involved in environmental education, environmental education associations; industry, business and labor organizations; citizen groups; and professional scientific research and education associations.

Constraints:
A. A new organizational structure is being sought.
B. Implementation of this recommendation would stretch existing funds and would require new funds.

Strategies: An ad hoc task force should:

Develop a position paper on the goals and vision of the Center, a needs assessment, staffing requirements, policies and procedure, and a timeline.

Convene a management team to investigate other successful centers and design a marketable management scheme, budget process, and evaluation instrument for the Center.

Present the proposal to appropriate government offices and other associations and organizations.

Promote a wide discussion of the National Center concept among governmental, educational and industrial leaders and other appropriate individuals who are in a position to support the plan either directly or through other sources.

Formulate an achievable fiscal and operational plan for the initiation and maintenance of the National Center.

Seek funding from private and public sources.

Monitoring: Until the Center is established, the Alliance should initiate and monitor all action. Further, that the Alliance communicate with the participants on progress of these efforts by March 31, 1984.

RECOMMENDATION 2: A NATIONAL DEMONSTRATION AREA AND REGIONAL DEMONSTRATION AREAS FOR ENVIRONMENTAL EDUCATION SHOULD BE ESTABLISHED FOR THE FOLLOWING PURPOSES, TO:

Demonstrate the involvement of all secters of the American public in the education process.

Demonstrate the economic, recreation and tourism benefits that can be associated with environmental education programs.

Bring together in one location in each region, successful programs for demonstration, refinement and application.

Provide an opportunity for scholars and practitioners to study applications and methods involved in environmental education.

Demonstrate the interrelatedness of education, community, business and natural resources in environmental education programs.

Targets: TVA, Association of Interpretive Naturalists, Council on Outdoor Education, regional environmental education organizations like WREEC.

Community groups, the business community, school systems, environmental professionals, citizen organizations, etc.

Strategies: Each area should have a land and water resource base for environmental studies.

The areas and their managing agencies should be associated with several school systems, demonstrating representation at all levels.

Involve community and local service groups in on-going program development, implementation, and evaluation.

Materials and programs should reflect the needs of diverse groups.

Define the region that Demonstration Areas will serve in terms of ecological or hydrological units that would be applicable to the needs in that area. (For example, The Great Plains, The Mississippi Drainage, The Rocky Mountain Demonstration Area for Environmental Education).

Constraints: Lack of consensus regarding the utility of a system of regional demonstration areas.

Need for a clearly developed proposal.

Lack of funding, time, people skills, organizational structure.

Lack of a facilitating organization or organizations.

Monitoring: The primary responsibility for implementing this recommendation will have to come from heads of environmental organizations and key administrators.

A subcommittee of members of Alliance affiliates should be responsible for disseminating this recommendation to the target audiences.

RECOMMENDATION 3: A NETWORK OF REGIONAL CENTERS OF ENVIRONMENTAL EDUCATION SHOULD BE ESTABLISHED TO:

Act as a clearinghouse and information center in environmental education.

Promote cooperation among environmental education associations, Federal government offices, citizen groups, youth organizations, and the scientific, research, and education communities.

Provide referral service for environmental education consultations.

Support and participate in an international network of environmental education centers.

Monitor and report on the status of environmental education.

Monitor and report on emerging issues in environmental education.

Establish a communications network with teacher centers, state and local education systems, youth organizations, and non-governmental organizations involved in environmental education.

Assist in planning for environmental education research and development.

Serve as a referral center and repository for environmental education materials and information.

The Centers should be staffed by full-time directors with an advisory committee of non-governmental environmental organizations. These Centers could be established in existing facilities at Universities, nature centers or libraries.

Target: Total environmetnal education community, appropriate universities, environmental education centers or schools.

Constraints: Lack of funding; barriers to communication, both artificial and real.

Strategies: Designation of appropriate regional sites (Alliance for E.E.).
Active search for materials for inclusion.
Search for funding of Centers.
Publicity for Centers (how to use, Alliance membership and non-membership awareness).

Responsibilities:

Alliance should form a network of non-formal and formal environmental educators to identify regions. Local institutions and organizations will be charged with establishing centers for inclusion in this system.

Monitoring: Alliance to prepare an annual report on status of Centers.

II. Environmental Education Literacy

Wise use of natural resources and protection of environmental quality should be important considerations in all school programs because these factors directly affect the lives of all students - both now and in the future. Environmental education, the term generally used to describe an educational program designed to help people understand their interdependence with the natural world and the necessity for conserving its resources, has implications in nearly all subject matter fields, at all grade levels, and for both the formal and non-formal institutions for learning.

RECOMMENDATION 4: THE TBILISI GOALS, OBJECTIVES AND GUIDING PRINCIPLES OF ENVIRONMENTAL EDUCATION SHOULD BE FURTHER CLARIFIED FOR USE by teachers and youth leaders; mechanisms for achieving these goals should be further identified to encourage environmental educators to utilize the environment in its totality and in all curriculum and nonformal program areas; the Alliance for Environmental Education should encourage the utilization of intermediate units (regional units within states, such as Boards of Cooperative Educational Services) for environmental education.

Targets: State education agency environmental education specialists, school district environmental education coordinators, environmental education building coordinators, youth organization leaders.

Constraints: Lack of a sense of urgency for environmental education among educators, apathy, lack of funding, pressures from other mandated programs, backlash caused by misunderstanding of the environmental movement.

Strategies: The Alliance for Environmental Education should recommend that each school district and youth organization identify one person as environmental education coordinator.

The Alliance for Environmental Education should identify levels of competency expected for professionals and volunteers in environmental education.

The Alliance for Environmental Education should recommend that each school district and youth organization offer frequent environmental education in-service programs. Emphasis should be given to environmental education content, methods, and use of all community resources.

The Alliance for Environmental Education should urge its members to publish information on worthwhile efforts to meet the Tbilisi goals, objectives, and guiding principles, and how they are being implemented.

Responsibilities:

The Alliance Board should appoint members to implement strategies.

Evaluation: The Alliance for Environmental Education should provide a progress report of achievements regarding the above recommendation at each meeting of its Board of Directors; these reports should be printed in the Alliance Exchange.

RECOMMENDATION 5: CITIZEN POLITICAL ACTION: AN IMMEDIATE PRIORITY FOR CITIZEN ORGANIZATIONS MUST BE THE TRAINING OF CITIZENS IN POLITICAL ACTION.

Targets: The leadership of local, regional, state, national and international citizens' groups.

Constraints: The concern of citizens groups for retaining their charitable status (IRS 501(c)(3)).

The lack of models for training citizens in political action, and expert trainers.

The negative image of political action which needs to be overcome.

The hesitancy of citizens to become involved in political action, and the need for training in those skills.

Strategies: Acquaint ourselves with the existing citizen action models and training materials available through groups like the Public Interest Research Groups, the Environmental Defense Fund, etc.

Identify capable trainers and link them with the stated target groups.

Persuade individual groups or coalitions that citizen action training be a priority.

Help groups plan and conduct training.

Monitoring: Periodic poll of groups.

RECOMMENDATION 6: CITIZEN PARTICIPATION (LEARNING BY DOING)

Members of citizen groups learn about environmental issues and political and governmental processes by becoming involved in the regulatory and planning processes. EE groups and citizen groups must press to keep Citizen participation channels open.

Constraints: Federal priorities may not favor public participation efforts.

Hesitancy on the part of agency personnel to educate and involve citizens in the regulatory process.

Monies for: reimbursement of citizen's expenses to participate; coordinating functions needed in bureaucracy; litigation for implementation of citizen participation requirements.

Strategies: Identify citizen participation language in current laws & regulations, assess its implementation, and if necessary explore the possibility of litigation through national legal action groups (EDF, NRDC, etc.).

Review proposed legislation (new and reauthorized) to insure it has or retains citizen participation requirements.

Review state environmental protection acts (SEPA's) and Administrative procedure acts at the state level to identify opportunities for citizen participation. Disseminate through state organizations.

Identify successful citizen participation models and disseminate information (e.g., New York State's environmental quality review and State Comprehensive Outdoor Recreation Plans).

RECOMMENDATION 7: ENHANCING CITIZEN LITERACY

EE-ers and citizen environmental organizations should work to make sure that civics curricula include environmental concerns & problem-solving.

Target: The social studies teaching community (teachers, trainers of teachers, curriculum and textbook developers, other resource people).

Constraints: The increasing complexity (technical, social) & conflict-ridden nature of issues.

The "don't rock the boat" attitude of much of the teaching community vis a vis controversial issues.

The lack of ties between the EE community and the social studies community.

Strategies: Make ourselves aware of existing EE and SS materials which deal with decision-making and problem-solving around environmental issues.

Build linkages to social studies/civics teaching community; encourage the use of existing materials; and help to incorporate environmental emphases in new civics curricula.

RECOMMENDATION 8: INFORMAL & "FORMAL" EE COMMUNITY LINKS

To build links between those leaders and members of citizens' organizations who practice informal environmental education (e.g., education program chairs of citizens' organizations, who are largely volunteers and who do not normally attend environmental educational conferences and workshops) and the environmental education community.

Target: Board members and education program chairs of state and local citizens' organizations (e.g., garden clubs, Audubon chapters, church groups).

Constraints: Lack of a network among the informal EE community.
Time constraints on volunteers.

Strategies: Organization of statewide EE conferences to be attended by leaders and members of citizens organizations and facilitated by environmental educators. The objectives of the conference would be to:

a) make available methods of incorporating EE into the organizations' activities.
b) provide training in EE skill areas.
c) update participants on current issues & available resources.
d) develop a needs assessment for future activities.

Institute informal gathering (E^2B^2-EE Brown Bags) on a regular basis for sharing news, views, and concerns--NETWORKING!

Develop and share local and regional mailing lists of those in both the traditional and informal EE community.

Develop a statewide conservation directory of resource people.

Develop a resource support system (e.g., data-base access, bibliographies film libraries) in conjunction with the local library system. (Look into computer networking $$ support.)

RECOMMENDATION 9: EXPLORING ENVIRONMENTALLY-SOUND LIFESTYLES

Citizen groups and EE professionals must investigate and develop concrete behavioral models which foster modes of living that maintain ecological diversity and integrity.

Target: EE community and citizens' organizations.

Constraints: Limit of models available (Farallones Inst., Integral Urban House, The Ark, etc.).

$ for continued research and demonstration.

Strategies: EE resident programs incorporate environmentally sensitive behavioral models in present living accomodations.

Citizens' organizations introduce their members to those models that are presently available & encourage them to adopt personal lifestyles which support these models.

A component of all EE curricula at all levels should be an exploration of lifestyles.

Encourage religious organizations to explore preach/practice lifestyles.

Make sure that proponents of such lifestyles are included on future programs of EE conferences & environmental organization meetings.

Make sure that environmental ethic issues are addressed on future EE and environmental organization conference programs.

To promote the image of these behavior models as compatible with a quality standard of living.

One thing seemed quite clear to every study group: environmental education demands well educated teachers and strong efforts must be undertaken to see that teachers get that education before they begin teaching and/or while they are teaching.

RECOMMENDATION 10: COMPETENCIES AND ACCREDITATION IN EE LITERACY FOR TEACHERS

We recommend that the need for establishing competencies for environmental education and environmental studies professions be investigated. These competencies would be used to accredit and evaluate college programs in environmental education and environmental studies.

Target: A subcommittee of members of Alliance affiliates.

Strategies: Poll members of Alliance affiliates to see what professional competencies are needed.

Gather standards and competencies already published by organizations and agencies such as engineering societies, state departments of education, and the Association of Interpretive Naturalists.

Contact environment-related associations and businesses for assistance and cooperation in developing competencies.

Poll members of Alliance affiliates to see whether the proposed competencies are acceptable.

Constraints: Lack of time.

Possible lack of interest and/or support for investigating the need for competencies and in developing these competencies.

Monitoring: If no action on this recommendation is initiated by an Alliance subcommittee, it will be assumed that this lack of action signifies that the profession perceives no pressing need for these standards.

If a majority of members of any Alliance affiliate reject the proposed competencies, then these will be considered rejected by that Alliance affiliate only.

RECOMMENDATION 11: A FRAMEWORK FOR TEACHER PRE- AND INSERVICE TRAINING

Teacher pre-service and in-service education should provide learning that builds an understanding of the earth by developing teaching skills, methodologies and implementation strategies derived from on-going research and curricula which emphasize an understanding that all elements of the earth are interrelated.

Thus, we recommend that the major components of any teacher pre-service and in-service education should be to assist teachers to develop and teach in programs designed to reach the above goal by:

a) Modeling curricula to harmonize the life of a person with that of the planet, thereby reflecting in the curricula the interrelationships of the ecosystem;
b) Developing an understanding that the maintenance of the Earth is based on cooperation, necessitating environmentally sensitive planning;
c) Considering the environment in its totality by building an understanding of the interrelationship of the natural and social behavioral systems;
d) Enabling learners to have an integral role in planning their learning experiences by providing the context for responsible decision making;
e) Constructing a global ethic which values personal responsibility to respond empathetically to the total ecosystem;
f) Emphasizing the global impact of environmental problems and thus the need to develop holistic thinking and problem-solving skills;
g) Learning a holistic perspective of the environment which encounters cultural, intellectual, and natural processes and uses those experiences to lead the individual towards a working knowledge of the planet;
h) Formulating current and potential environmental solutions by taking into account an historic and future perspective; and
i) Being inter-disciplinary in its approach; integrating a cross-cultural, multi-disciplined perspective.

Target: Chief state school officers and/or commissioners in charge of curriculum development and instruction.

State education agency specialists in environmental education.

School district curriculum planner/coordinators.

College and university faculty/programs responsible for pre-service and in-service educational training for educators, and, specifically those affiliated with the "Higher Education Policy Committee."

State natural resource/environmental protection agencies.

State environmental education associations.

Strategies: The Alliance for Environmental Education or appointee should communicate the above recommendations to state environmental education coordinators or designee from the State Department of Public Instruction, with a cover letter requesting the appropriate distribution to the target groups.

And, utilizing our own resources in support of this strategy, we suggest that the Higher Education Policy Committee mandate for themselves the actualization of these proposals in their personal and professional affiliations, thereby creating the continuity and sense of "mission" necessary to carry this proposal beyond the Congress.

Prepare a position paper on environmental education inservice education programs, including suggestions regarding the content, approaches to instruction, and minimum time requirement. Include in an appendix to this paper an annotated list of inservice programs which appear to meet the stated criteria.

Disseminate the completed position paper to agencies and organizations with actual or potential involvement in environmental education inservice programs including, but not limited to, the following: state education agencies, state natural resource management/environmental protection agencies, institutions of higher education, state environmental education associations.

In the letter of transmittal of this document, urge the agencies and organizations of each state to develop a cooperative state plan for environmental education inservice.

Disseminate the position paper to other agencies and organizations such as: federal educational and environmental agencies, national educational and environmental organizations, nature centers, regional and local educational and environmental organizations and agencies.

In the letter of transmittal of this document, urge recipients to develop local programs within the context of the cooperative state plan referred to above.

Monitoring: The state EE coordinator or designee from the State Department of Public Instruction is requested to prepare a report to the Alliance for Environmental Education or appointee regarding actions or progress taken by the target groups.

RECOMMENDATION 12: LEADERSHIP TRAINING IN EE

Conduct a survey to determine the status of pre-service and in-service environmental education activities including 1) review of current activities, 2) need for environmental education training and materials, 3) identification of expertise and potential for leadership to extend the program and 4) needs recommendation.

Targets: AEE
National and State Offices of Education
Youth and civic organization program leaders
State EE organizations
State and/or local accrediting agencies
Colleges and universities with teacher education programs
American Association of State Colleges and Universities
Professional Teacher Organizations
Teacher Centers
ERIC

Constraints: Lack of EE inclusion in texts
Lack of funds and other resources
Public and leadership apathy
Current curriculum burden

Strategies: Alliance should solicit member organizations to finance survey or identify funding sources.

Alliance should appoint a committee representative of members to direct the design and implementation of the survey. ERIC and academic institutions should be involved where feasible.

AEE should encourage the formation of state EE organizations which would recommend/provide/improve leadership training through:

- workshops
- dissemination network
- established recognition program for excellence in EE leadership cooperation with the State Department of Education, university and resource agency personnel

AEE should appoint committee to develop a network through which to reach youth, civic and service organizations at local, state, regional and national levels to develop/enhance EE action.

AEE member organizations should endorse the inclusion of EE in teacher centers.

Monitoring: The Alliance ad hoc committee should develop a plan to review and report on the status of recommendations to Alliance Board of Directors not less frequently than biannually. Plan should include academic institutions, resource agencies and state environmental education associations.

RECOMMENDATION 13: LOCAL LEVEL TEACHER INVOLVEMENT

Since the educational process happens with the interaction between teacher and student in the classroom, the classroom teacher must share ownership (be involved) in the planning and development of programs expected to achieve positive results.

In the conviction that a positive environmental commitment must be developed, we believe a sustained fully cooperative effort should be made by local school communities (teachers, administrators & school boards) to implement environmental education programs.

Targets: State and Nation:

Teachers
...AFT
...NEA
...Councils such as:
  English
  Social Studies
  Health, Physical Education/Recreation
  Geography
  Mathematics
State Environmental Education Coordinators

Administrators:
...Associations of Elementary School Principals
...Secondary School Principals

State & National School Board Associations

Constraints: Insufficient levels of cooperation, trust and support between teachers, administration and boards of education.

Lack of adequate funding and staff support for state and local environmental education coordinators.

Strategies: Communicate with target groups.

Get on their agenda at regularly scheduled meetings: Board meetings, executive council meetings, informal meetings with the leadership - whatever is appropriate.

Present our agenda:
. Need-advise-help with planning-coordinate meetings between teachers & administrator-school board.
. Groups specifically for developing cooperation, support and funding for EE programs.

Monitoring:

Responsibility for scheduling and monitoring shall be with the AEE Committee/Committee from the EE Congress. The Committee shall schedule meetings (speakers) with target groups; follow up with both those who respond and those who do not respond, until we fulfill our recommendation.

RECOMMENDATION 14: ACADEMIC EE PROGRAMS AND EE LITERACY: INTERNSHIPS

Bridging the gap between academic life and the world of work is one of the most crucial steps in a student's professional development. However, a recent survey of environmental studies programs by R. Bruce Harde revealed that slightly less than half of this country's undergraduate programs in environmental fields require or strongly recommend an internship.

Therefore, we recommend that:

All undergraduate environmental education and environmental studies programs develop high quality internships and other experimental learning opportunities for their students. Such work-related experiences should be required, or at least strongly recommended, in order to graduate.

A mechanism be developed to financially support student internships so that financial hardships do not prevent students from participating in internships offered by agencies and organizations unable to adequately pay interns.

Target: All college administrators and faculty with direct responsibility for environmental education and environmental studies programs.

Strategies: Collect available information and issue a position paper on the value of experimental learning in environmental programs.

Explore funding options, including college work-study programs and private industry sources.

Constraints: Lack of money by students, colleges, and/or agencies and organizations offering internships.

Existing course requirements may not be flexible enough to allow the usual term-long internships.

Possible lack of faculty time to develop, supervise, and monitor internship programs.

Monitoring: The Higher Education Group's representative to the Implementation Committee, or this person's designee, should be responsible for contacting people to implement the recommendations.

The recommended position paper should be mailed to directors of undergraduate environmental programs without internships, and feedback on the development or feasibility of internship programs should be solicited with this mailing.

RECOMMENDATION 15: OUTSIDE LINKAGES

To improve the quality of environmental programs, institutions of higher education should expand their contacts with non-academic segments of society. Specifically, environmental programs should develop working relationships with businesses, industries, non-profit organizations, government agencies, school systems, and community groups.

Potential benefits to environmental programs include financial support of research, scholarships, increased visibility for the program's accomplishments, broadening of faculty skills, enhancing internship and job opportunities, and continued growth of the college curriculum.

Target: Faculty and administrators of environmental programs at all colleges and universities.

Strategies: Disseminate this and related recommendations to the target audience.

Hold periodical environmental "brown baggers" meetings to encourage the exchange of local information and offer mutual support.

Encourage college administrators to make it more possible for faculty to attend regional and national conferences and to establish better links with local groups and individuals.

Constraints: Lack of time and interest in making outside linkages a high priority.

In many institutions, lack of travel monies, release time, and promotion-and-tenure rewards for linking colleges with local groups.

Monitoring: A subcommittee of members of Alliance affiliates should be responsible for monitoring this recommendation.

Much of the responsibility for implementing this recommendation will have to fall on the administrator of environmental programs at each institution.

When this and related recommendations are disseminated to the target audience, solicit reports on successful efforts. Persons submitting such reports should also be encouraged to publish their programs in the appropriate professional journals and newsletters.

RECOMMENDATION 16: GENERAL EDUCATION

By its interdisciplinary nature, environmental studies is a powerful link among the various academic disciplines. Few undergraduate institutions of higher education, however, have well-conceived, integrated general education programs which include environmental perspectives.

Thus, we recommend that an environmental perspective be incorporated into the general education graduation requirements of every undergraduate student.

Target: Academic deans and administrators of environmental programs in all colleges and universities.

Strategies: Ideally, colleges should incorporate an environmental component into every general education course.

As an alternative, colleges could require that undergraduates take a general environment-related course in order to graduate.

Disseminate this and related recommendations to academic deans and administrators of all environmental programs.

Model general education requirements should be described, perhaps in a position paper.

Constraints: College faculty, students, and curriculum committees are understandably resistant to expanding or changing general education requirements.

Traditional disciplinary boundaries are often strong, even in general education course offerings.

Monitoring: A subcommittee of members of Alliance affiliates should be responsible for monitoring this recommendation.

Feedback should be solicited when this and related recommendations are disseminated.

Much of the responsibility for implementing this recommendation will have to fall on the administrator of environmental programs at each institutions.

RECOMMENDATION 17: ADMINISTRATION OF COLLEGE ENVIRONMENTAL PROGRAMS

Environmental education and environmental studies transcend many disciplines and levels of higher education. As a result, environmental programs are often tethered to the college by very fragile umbilicals.

It is recommended that appropriate strategies (see possibilities listed below) be implemented in order to help insure the stability and quality of environmental education and environmental studies programs.

Target: All college presidents, academic deans, and administrators of environmental programs.

Strategies: Form a multidisciplinary advisory committee with the expertise, resources, and motivation to develop and monitor the program.

Assign one individual administrative responsibility for the program and adequate time to perform the inherent duties.

Individuals working in environmental programs should be tied directly to the governance of the institution, including sitting on committees and participating in the rewards system.

The administrator of the environmental program should report directly to institution-wide committees and/or the appropriate dean, instead of reporting to the head of a traditional disciplinary department.

A short "chain of command" is important to the stability of the program.

Constraints: Traditional boundaries between disciplines are generally strong.

Academic chains of command often do not allow for interdisciplinary programs and the direct reporting to persons other than department heads.

In interdisciplinary programs everybody's responsibility can easily become nobody's responsibility, and such programs can flounder or disappear.

Monitoring: A subcommittee of members of Alliance affiliates should be responsible for seeing that this recommendation is disseminated to the target audiences.

Much of the responsibility for implementing this recommendation will have to fall on college administrators and heads of environmental programs.

RECOMMENDATION 18: THE STUDY OF THE BUILT ENVIRONMENT SHOULD BE INCORPORATED INTO ENVIRONMENTAL EDUCATION PROGRAMMING

Targets: Formal and nonformal environmental education programs, urban planners and architects, other urban environmental professionals, and environmental educators.

Constraints: Lack of understanding concerning the built environment.
Bias for the "natural" environment.
Negative attitudes towards the urban environment.

Strategies: Encourage environmental education organizations to develop materials on the built environment. This should be done in consultation with experts on the built environment such as urban planners, sanitation engineers, soil conservationists, architects, etc.

Encourage environmental education organizations to incorporate information on the built environment into their workshops and conferences.

Encourage institutions which are training environmental educators to include the built environment in their curriculum.

Responsibilities:

The Alliance for Environmental Education and the Congress co-sponsors should approach national civic organizations such as the League of Women Voters for funding to develop materials on the built environment.

Evaluation: The Alliance should form a Subcommittee on the Built Environment. This committee will assure that these strategies and responsibilities are implemented and evaluated.

III. Environmental Education Networking Systems: Institutional Arrangements and Communication

A clear focus of much discussion at the Congress was on the ways and means of improving communication and cooperation networks among existing organizations, especially the Alliance, to improve EE at least cost and most effective use of resources.

RECOMMENDATION 19: STRENGTHENING AEE

There should be established among Alliance member organizations a cooperative relationship in implementing environmental education projects and programs.

Targets: Alliance member organizations and potential members, supporters, and cooperators.

Constraints: Vested environmental education interests in Alliance member organizations.

Difficulties in communicating cooperative programs and identifying the priority interests of member organizations.

Not all organizations involved in environmental education are members of the Alliance.

Strategies: The Alliance should broaden its membership and support base.

The Alliance should develop an EE program/project task needs list.

An ad hoc committee of the Alliance should build a rationale and a project list and bring this to the attention of member organizations.

The Alliance should communicate cooperative program efforts.

The Alliance should seek industry/business support for cooperative projects.

The Alliance should improve existing, and establish, appropriate professional newsletters, periodicals, and journals as a means of furthering cooperative efforts.

Monitoring: The Alliance ad hoc committee should be charged with the responsibility to monitor membership cooperation.

RECOMMENDATION 20: THE PRESIDENT OF THE ALLIANCE FOR ENVIRONMENTAL EDUCATION SHOULD ARRANGE FOR A REPRESENTATIVE GROUP FROM THE ALLIANCE TO MEET PERIODICALLY WITH APPROPRIATE FICE SUBCOMMITTEES:

To seek Federal agency cooperation at regional levels to coordinate with and to inform environmental education specialists about Federal environmental education programs and activities within the respective states;

To provide a linkage between national non-governmental organizations and the Federal agencies to secure the benefits which accrue as a result of networking.

Targets: The President of the Alliance for Environmental Education and the Chairpersons of the appropriate FICE subcommittees.

Monitoring: Request copies of Federal agency memoranda that implement the suggestions for cooperation, and spot-check the state environmental education specialists on results.

RECOMMENDATION 21: THE ALLIANCE FOR ENVIRONMENTAL EDUCATION NEEDS TO BROADEN ITS MEMBERSHIP BASE AND DEVELOP A HIGHER PROFILE AND SUBSTANTIVE COMMITMENT FOR ENVIRONMENTAL EDUCATION FROM ITS MEMBER ORGANIZATIONS

Target: AEE Board of Directors and member organizations.

Constraints: Lack of support dollars in member organizations.
Lack of commitment to EE in member organizations.
Lack of adequate sales job to key member organizations by AEE.
Lack of equity of support from member organizations.

Strategies: AEE Board should appoint a standing committee to identify a wide diversity of prospective member organizations and to solicit their membership, including non-traditional groups such as churches, civic groups, etc.

AEE Board should appoint a program committee to develop programs and projects of high interest to member organizations and to secure funds to carry them out.

AEE Board should develop rationale for member support of a full-time staff member whose tasks would include representing AEE in Washington, D.C. and developing a National Center.

AEE Board should appoint a task force to seek funding for hiring AEE staff.

Monitoring: AEE Board

Recommendation 22: OFFICE FOR ALLIANCE FOR ENVIRONMENTAL EDUCATION

The Alliance for EE needs to develop a higher profile and commitment for environmental education from its member organizations. An Alliance staff with office space is of high importance in this regard.

Target: Alliance for Environmental Education Board of Directors & member organizations.

Constraints:
- Lack of support dollars in member organizations.
- Lack of commitment to environmental education in member organizations.
- Lack of adequate sales job to key member organizations by the Alliance.
- Lack of equity of support from member organizations.
- Lack of opportunity for support outside its member organizations.

Strategies: Alliance Board should develop rationale for member support of full-time staff.

Board or ad hoc committee should prepare and deliver a formal presentation for funding from large member organizations; this support could be used to hire a staff.

Funding of staff should be linked to the National Center for EE concept, with staff being housed in the National Center.

Alliance Board should continue to seek industry, grant and private funding for Alliance activities.

Solicit greater participation and support by individuals and foundations.

RECOMMENDATION 23: STATE/FEDERAL NETWORKING

The EE Subcommittee of FICE should contact and set up working relationships with the State EE Coordinators Association, the Western Regional

EE Council and other related organizations representing educators and resource management personnel with state level EE responsibilities to interact with FICE-SEE on matters related to Federal policy and program assistance. State personnel should provide advisory assistance by identifying known or perceived needs from within their respective states.

__Target:__ EE Subcommittee of FICE, State EE personnel, SEECA, WREEC and related associations.

__Monitoring:__ The Alliance for EE should request that FICE-SEE take the initial step of contacting the state people and organizations and monitor the resulting actions.

The Alliance for EE should request one or more of its member organizations with a strong affiliate network, such as National Wildlife Federation, to:

1. Assess the status of the state level program in each of their states.
2. Report their findings to the ERIC center, OSU.
3. Push for an adequate state program as described above.

RECOMMENDATION 24: THE PRESIDENT OF THE ALLIANCE FOR ENVIRONMENTAL EDUCATION SHOULD ARRANGE FOR A REPRESENTATIVE GROUP OF YOUTH ORGANIZATIONS FROM THE ALLIANCE TO MEET PERIODICALLY WITH APPROPRIATE FICE SUBCOMMITTEES:

To seek Federal agency cooperation.
To inform youth organizations about Federal environmental education programs and activities.
To provide a linkage between national non-governmental youth organizations and the Federal agencies to secure the benefits which accrue as a result of networking.

__Targets:__ The President of the Alliance, Chairpersons of the appropriate FICE subcommittees, and youth organization members of the Alliance.

__Evaluation:__ Request copies of the Federal agency memoranda that implement the suggestions for cooperation and spot-check with youth organizations on results.

RECOMMENDATION 25: A NATIONAL NETWORK FOR THE PROMOTION OF ENVIRONMENTAL EDUCATION, TRAINING, RESEARCH, AND COMMUNICATION, WHICH INVOLVES THE VARIOUS GROUPS CONCERNED WITH ENVIRONMENT AND DEVELOPMENT, SHOULD BE ESTABLISHED. THE NETWORK SHOULD GIVE FIRST PRIORITY TO PROMOTING AND SUPPORTING THE EFFORTS OF EXISTING LOCAL, REGIONAL, NATIONAL, AND INTERNATIONAL OPERATIONS WHICH ARE CARRYING OUT ASPECTS

OF THE LISTED STRATEGIES. NETWORKING AND CATALYTIC ACTION SHOULD BE THE NATIONAL NETWORK'S FIRST ORDER OF EFFORT. HOWEVER, WHERE MORE DIRECT LEADERSHIP AND ACTION ARE ESSENTIAL TO ITS MANDATE, THE NETWORK SHOULD MOVE TO GALVANIZE ACTION BY THE ENVIRONMENTALLY CONCERNED COMMUNITY.

Target: The Alliance for Environmental Education in cooperation with the FICE subcommittee.

Strategies: Promote cooperation and communication among professional organizations and associations, government agencies, business, labor, citizen groups and the research and education communities.

Serve as a clearinghouse and information dissemination network on environmental education, training, research and communication.

Promote and participate in, and be suportive of, local, national, and international networks.

Monitor progress and activity in environmental education, training, research and communication.

Provide current status feedback to its network on achievements and needs.

Undertake appropriate action (i.e., publications, programs, conferences, seminars, and legislation) to promote the development and implementation of environmental education, training, research and communication, locally, regionally, nationally and internationally.

Constraints: The complexity of the task both in the short term and long term.

Lack of funding, time, and commitment of institutional resources.

The diffuse nature of coordinating and implementing a national network has not allowed for acceptance of responsibility by any group, especially from government.

Monitoring The Alliance for Environmental Education should assume the responsibility for initiating action to establish this Network, and as part of this responsibility should communicate with the participants of the Congress on the progress of these efforts.

RECOMMENDATION 26: A PROFESSIONAL ENVIRONMENTAL STUDIES ORGANIZATION

Faculty teaching in college environmental studies programs number close to 2,000 plus another 2,000 to 4,000 teaching related courses. A recent survey of environmental studies programs by R. Bruce Harde found that over half of the respondents perceived a need for a professional association of environmental studies faculty.

Therefore, it is recommended that a professional organization be established for college teachers in environmental studies and related area.

Target: College environmental studies instructors.
The Environmental Studies Section of the National Association of Environmental Education.

Strategies: Identify and describe the benefits of the proposed association. Mail a membership brochure and/or a prospectus to all identified environmental studies faculty.

Constraints: In larger institutions especially, the rewards system often discourages scholarship or professional activity beyond the traditional academic disciplines. Thus, this recommendation, at least initially, is more likely to succeed with faculty in smaller colleges.

Environmental studies faculty already belong to many organizations and may be reluctant to add or switch affiliations unless an environmental studies association is perceived to be meeting the specific needs of environmental studies faculty.

Monitoring: The Alliance for Environmental Education or the Board of the National Association for Environmental Education.

RECOMMENDATION 27: WORKING CONFERENCE

In order to establish an environmentally literate and responsible population of professionals, leaders and citizens, in institutions of higher education, both the liberal arts and the professions, the curriculum should incorporate an environmental perspective promoting the holistic learning of skills, methods and relationships necessary to understand and maintain the earth as a living organism.

Thus, we recommend that the National Association for Environmental Education establish a working committee composed of appropriate individuals and organizational representatives to initiate and monitor actions directed toward achieving this goal and implementing the following strategies. We suggest that, as its first action, this committee convene a conference of interested faculty, administrators and students to consider these issues and prepare appropriate action recommendations.

Target: Institutions of higher education; their faculty and administrators.

Strategies: Identify and implement strategies that will enhance collaboration across disciplines in existing programs in support of this perspective. This should include consideration of issues related to the following:

educational curricula and materials
institutional and traditional constraints associated with faculty reward systems and the definition of academic "turf."

We recognize that it will be useful to examine past and present programs in order to identify factors that contribute to program success or failure.

Establish resources in support of faculty development and information and materials dissemination to:

- improve the quality of teaching in higher education
- promote integrative approaches to teaching on both cognitive and affective levels
- promote an environmental perspective throughout higher education

Develop methodologies for evaluating programs, activities and materials in higher education in terms of their contribution to this goal.

Identify, evaluate, disseminate and implement curriculum models for achieving this goal. New models should be developed, if necessary.

Establish systems to enhance communication and collaboration among faculty administrators and students who are trying to pursue this goal.

Introduce curriculum objectives and/or course requirements promoting this goal and integrative thinking skills into curricula in higher education.

Incorporate this goal into the statements of purpose and curriculum of institutions of higher education.

Identify and/or establish funding sources in support of programs in higher education that pursue this goal.

RECOMMENDATION 28: STATE RESPONSIBILITY FOR ENVIRONMENTAL EDUCATION THROUGH STATE LEGISLATION, PLANNING & NETWORKING

Early in the EE movement there was a strong focus at the Federal level, but since responsibility for education falls at the state level increasing attention to the role of state government to promote environmental literacy is a priority for the decade. Therefore, we recommend the identification on a state-by-state basis of a mechanism or target - be it legislation or school officials - that can influence the role of environmental education throughout the school systems - K-12 and higher education for the following purposes:

As an advocate in support of environmental education in the curriculum.

As an advocate for environmental education in the state department of education and within school systems, colleges and universities.

As an advocate for the identification, utilization and development of networks to facilitate environmental education, communication, dissemination and implementation.

We further recommend that these mechanisms or targets be continually supported and nurtured to strengthen the role of environmental education in state school systems.

Each State should, either through legislation or by administrative regulations:

Require EE instruction at all grade levels in the basic subject matter areas, and add other fields as appropriate.

Establish a state-funded Office of Environmental Education in the State Education agency which will:

Be staffed by at least one full time professional person with support.
Be provided with adequate financial resources necessary to provide leadership and mount an effective statewide program.
Set up appropriate working relationships with state resources agencies.

The state EE Coordinator should develop and utilize networks to facilitate statewide EE communication, dissemination, and implementation, and should provide leadership for the development and implementation of a state plan which will include provision for:

Working with other Department of Education professionals to help them see the EE implications in their subject field and related programs, and enlist their active assistance in the overall statewide effort.

Teacher pre- and inservice education.

Curriculum and instructional materials selection and development.

Identification and coordination of program resources available from state agencies, Federal agencies, and private organizations.

A state-wide advisory committee.

Evaluation and monitoring of programs.

Program coordination with other states.

A grant program to assist local efforts.

Efficient use of Federal discretionary funds for environmental education.

A clearinghouse function for all appropriate funding sources such as Federal and private funding.

Linkages withing the state educational agency among units responsible for various subject areas including but not limited to reading, social studies, sciences, math, etc.

Targets: Office of Education, DOE, State legislators, governors, chief state school officers, resource agency chiefs.

Constraints: Lack of adequate state funds.
Lack of evidence of public support.
Lack of statewide interest and knowledge about EE.
Opposition from industry, administration, anti-environmentalists.
Competing interests.
Lack of State EE Associations.
Limited membership of state associations.
Lack of awareness of national headquarters & chapters of citizen and conservation organizations of the need for EE.

Strategies: Build an interest and power base for EE which could include: key legislators and their staffs, state school boards of education, appropriate state agencies, major lobbying and interest groups, EE educators from other states, and Federal encouragement.

State EE associations or similar interested organizations should:

Identify the appropriate mechanisms and targets.
Identify the local or regional B-I-L with potential interest in EE.
Identify national citizens and conservation organizations with state chapters, i.e., National Audubon Society, National Wildlife Federation, National Council State Garden Clubs, National Association of Conservation Districts.
Determine with the national offices of these state chapters the appropriate contact point to encourage state involvement in EE, i.e., national to local where the chapter is totally autonomous.
Work with and through chapter offices and members and business and industry to build their awareness of the need for EE and their support in developing the target mechanism and/or school officials as advocates for EE.
Support and nurture continually this multiplier delivery system.

Responsibilities:

State EE Associations and Coalitions.
State Education Agency and Resource Management Associations.
Alliance for EE.

Monitoring: State environmental education associations or similar interested organizations.

RECOMMENDATION 29: NONFORMAL EDUCATION SHOULD BE RECOGNIZED AND SUPPORTED FOR ITS GROWING IMPORTANCE IN DEVELOPING ENVIRONMENTAL CONCEPTS AND ACTIONS AMONG ALL YOUTH

Targets: Formal education community, state and federal agencies, the Alliance for Environmental Education, other environmental organizations, and the general public.

Constraints: Lack of cohesive organization among nonformal youth organizations, lack of volunteer training, inability to network, lack of environmental education in programs, size of the organizations.

Strategies: Convene a working conference for youth organizations and environmental education organizations for the purpose of increasing communication between the groups and developing ways of insuring environmental education into youth programs.

Encourage environmental education organizations to recognize outstanding leaders and programs in nonformal environmental education.

Contact federal and state agencies. Ask for the development of nonformal environmental education materials and funding for volunteer training.

Develop a network of environmental education programs and materials for use in nonformal settings.

Develop an environmental education volunteer training manual.

Work toward use of appropriate nonformal education programs and materials by the formal educational community.

Responsibilities:

Alliance and Congress co-sponsors should convene a working conference of youth organization leaders.

Environmental education organizations should begin networking at the local level with youth organizations and nonformal education groups.

Environmental education organizations should make every attempt to include youth in their programming.

Environmental education organizations should determine what environmental education materials and volunteer training are needed by the nonformal environmental education sector and make these known to appropriate Federal and State agencies.

Evaluation: The Alliance should set up a Nonformal Organization Subcommittee to monitor and assure that the strategies and responsibilities are implemented and evaluated.

RECOMMENDATION 30: E.E. EDUCATORS COALITION

Environmental educators should form a coalition with conservation, education, environmental, business, scientific and other appropriate groups within their states to gain political and legislative support for environmental education. Political action should be directed toward:

Requiring environmental education in the K-12 curriculum of all public and private schools.

Encouraging states to assess the environmental knowledge, attitudes and investigative and participatory skills of the K-12 students.

Mandating environmental education teacher-training to provide environmental education competencies, i.e., The Wisconsin Model.

Encouraging local school systems to develop in-service teacher training using the resources of private and public environmental organizations, colleges and universities and other appropriate groups.

Obtaining viable and stable funding sources for the support of the environmental education program, i.e., The Missouri Model.

Targets: State legislators, governors, and other appropriate governmental bodies, e.g., state boards of education, conservation departments, etc.

Constraints: Lack of support from educational institutions (administrators, teachers, school boards).

Lack of support from government and state departments of education.

Possible opposition from teacher training programs at colleges and universities.

Lack of taxpayer support.

Possible opposition from industry and business.

Competition for time and space from other special interest groups, i.e., advocates of computer literacy, special education, etc.

Lack of funding for implementation.

Lack of trained teachers.

Responsibilities:

State environmental organizations and environmental education organizations.

State and local education associations, public and private.

Alliance for Environmental Education.

State and local consumer and citizen groups.

Strategies: Survey the existence and content of current K-12 environmental education programs.

Complete an analysis of the costs, benefits, and impacts on local school systems.

Contact appropriate target groups to build a grassroot constituency.

Propose necessary legislation with funding means.

Develop an overall time schedule for phasing recommendations.

Design an inservice training program for teachers and/or a bridging strategy between environmental organizations and school systems.

Monitoring: Alliance for Environmental Education
State Environmental Coalition

RECOMMENDATION 31: BUSINESS/INDUSTRY/LABOR NETWORK

Immediately develop a plan and, as soon as possible, execute a program which will result in the establishment of a viable network among business/industry/labor and the public for the advancement of environmental literacy and action.

Targets: AMA, Better Business Bureau, Chamber of Commerce, major labor organizations, organizations of small business groups, national and local companies (large and small), all environmental education agencies and organizations, all educational groups.

Strategies: Seek funding.

Organize 8-10 regional conferences to develop a network and clarify objectives.

Call for a White House conference on environmental literacy (to be held after 1984 election)(seek candidate support and commitment to the conference prior to the election).

Make the organization of this network and a National Center for Environmental Education a major political issue now and into the 1984 election period.

A task force be established with membership from Business/Industry/Labor (B/I/L) and environmental education groups within the Alliance for Environmental Education to plan and convene a roundtable at the national level consisting of presidents, chief executive officers, etc. of large and small (B/I/L) organizations and environmental education to recommend, interpret and implement guidelines for (B/I/L) and EE cooperation.

Constraints: Participant commitment
Manpower
Funds

IV. Environmental Education Support

The Congress included an exchange of ideas on concerns of interest to all participants, both to ensure that such concerns were addressed and to add knowledge of future practices and policies from the expertise of the participants as well as from that obtained from speakers, resource persons and presentors. Again and again the need for research, evaluation and support were brought up.

RECOMMENDATION 32: RESPONSIVE ELECTRONIC NETWORK FOR RESEARCH

It is recommended that the Alliance for Environmental Education initiate the development of a committee of researchers and evaluators from the environmental community, to establish a responsive network through an electronic data base which would include:

A directory of researchers and evaluators in the field, their interests, and their activities in process;
Needs of researchers and evaluators as they pursue their activities;
Recommendations (made by other researchers and evaluators, and by practitioners) for further research.

Targets: The Alliance for Environmental Education with the National Institute for Education, evaluation and research associations and/or organizations.

Academia, youth organizations, citizen groups, business and industry, government, and education.

Strategies: This committee should also identify ways in which researchers and evaluators can more effectively communicate the results of their work with participants.

Explore, identify and develop a responsive system to enhance communication and collaboration among target groups.

Some of this work can be accomplished through existing efforts, such as those of the National Commission on Environmental Education Research of the National Association for Environmental Education.

Other existing research and evaluation networks should also be considered and new models developed as needed.

Constraints: Lack of appropriate rewards for interdisciplinary research, be it individual or collaborative projects.

Lack of responsive mechanisms for people involved in research or evaluation (especially interdisciplinary in nature) to connect.

The diversity of needs among institutions, organizations, and disciplines may require more regional efforts.

Lack of funding, awareness of resources, and institutional support.

Monitoring: A subcommittee of members of Alliance affiliates should be responsible for initiating action to establish this recommendation and should communicate with the participants of the Congress on the progress of these efforts.

Constraints: Traditional boundaries between disciplines.

Institutional and traditional constraints associated with faculty reward systems and the definition of academic "turf."

Lack of curricula that incorporate an environmental perspective that can fit within existing academic courses and programs of the diverse disciplines and departments within higher education.

Lack of programs of faculty development that would promote this goal.

Limited opportunities for interested faculty, administrators and students to communicate and collaborate with each other in pursuit of this goal.

Limited recognition and acceptance of this goal as a legitimate "top priority" goal of programs in liberal and professional education.

Lack of adequate funding for developing, implementing, evaluating and disseminating programs, materials, and activities supportive of these objectives.

RECOMMENDATION 33: INFORMATION AND DISSEMINATION SYSTEMS

An expanded information system should be devised, implemented and institutionalized for collecting, describing, indexing and disseminating materials useful in environmental education, training, research and communication. This system should be designed by those currently involved with existing segments, which should be incorporated into it, and should use existing intra-state centers.

These centers should be capable of collating, maintaining, and circulating information to the educational community. Local centers should also evaluate regionally-produced materials for inclusion in this system.

This information should be developed by a central clearinghouse which would actively seek environmental materials produced by the public and private sectors. The clearinghouse should also coordinate the flow of information with the intra-state centers.

Targets: Local intra-state centers, educators, The Alliance for Environmental Education in cooperation with the National Institute of Education and its clearinghouses.

Strategies: Develop an expanded system that includes the following:

a. Print and nonprint materials;
b. Periodical and fugitive literature, including both practitioner-oriented and researcher-oriented materials; and
c. Materials for formal and non-formal education for all ages and levels, including special populations.

Develop evaluation criteria for determining acceptability of materials as well as glossaries and key word lists oriented to the lay person.

Utilize computerized processing and retrieval, and microfilm/microfiche as a back-up system.

The system should be as simple as possible, yet capable of routine expansion to accommodate future additions and/or redirection.

The information system should be usable worldwide, and include a plan for continuous maintenance and interfacing with other information systems.

A training process for those who will use the system should be initiated in higher education and continuing education programs.

Evaluate the possibility of ERIC assuming such an expanded role.

Organize members of the Alliance and affiliates to investigate funding sources and implementation.

Use SEECA to identify local intra-state centers.

Constraints: The diversity of the present information systems and their perceived lack of compatability.

A lack of leadership for pulling all the pieces together.

Volume of materials available.

Funding and staffing.

Monitoring: The Alliance for Environmental Education should assume the responsibility for initiating action to establish this system by enlisting the aid of those presently involved in existing segments to identify current gaps and possible strategies.

RECOMMENDATION 34: DISSEMINATION TO TEACHERS

Improve development and dissemination of EE information and materials to teachers and leaders.

Targets: AEE board, National Center, textbook publishers, NGOs, teacher accreditation groups, ERIC, professional education organizations, resource agencies.

Constraints: No existing network to handle the range of materials available and needed.
Lack of funds.
Leadership void.
Lack of educational community support.

Strategies: AEE member organizations should take leadership role in promoting and conducting training programs, at the local, state and national level.

AEE members should be active in providing EE materials to professional and teacher journals, periodicals and ERIC.

Upon inception, the National Center in conjunction with ERIC should establish a network to be charged with securing, evaluating, and disseminating EE materials.

AEE should ask NEA, AFT, NSTA to work with publishers in incorporating EE into texts.

Monitoring: AEE ad hoc committee should develop a plan to review and report on status of recommendations to AEE Board of Directors not less than biannually. Such plan to include academic, resource agencies, state EE associations, etc.

RECOMMENDATION 35: MEDIA

The communication media remain one of our most powerful EE tools. We need to continue to build sophistication in the use of existing and emerging media (1) to promote awareness and understanding of environmental issues, and (2) to promote EE in general and EE opportunities in particular.

Target: Publicity committees and leadership of environmental organizations.

Constraints: Media contacts.
Access is difficult & time-consuming.
High cost (money & time) of developing one's own material.
Lack of media sophistication on the part of local, regional

and even national groups.
Lack of knowledge of FCC rules on public service opportunities.

Strategies: Network with and learn from existing successful media work by citizen organizations (e.g., Solar Lobby media project, SW Research & Information Center's Communications Workbook, etc.).

Educate ourselves about community access cable TV, cable networks in the schools and other developing media opportunities.

Work to see that media skills get shared at regional and national EE gatherings.

RECOMMENDATION 36: WORKSHOPS ON FUNDING

Because previous funding sources for environmental education programs have been eliminated or highly restricted, environmental educators have been pushed into competition with other educators and programs for money and resources. Therefore, we recommend a committee be established to set up a series of workshops to help environmental educators develop the skills necessary to access industry/business/labor for support and services, (e.g., technical assistance of all kinds as well as financial).

Target: Persons interested in environmental advancement of literacy.

Strategies: Workshops should be regionally held and accessible to the wide spectrum of environmental educators.

Workshops should include speakers from national, regional, and local business/industry/labor.

Workshops should not be organized to be an access point for environmental educators to industry/business/labor.

Workshops should emphasize development of the following skills:

- To understand the industry/business/labor goals and objectives.
- To evaluate participant's environmental education programs.
- To develop common strands between the educators and industry/business/labor.
- To market the environmental education programs.

Constraints: Accessibility of conferences to environmental educators.
Skill and commitment of speakers/resource persons.

Appendix A: Evaluation Committee Report — The Special Role of Evaluation

D. A. Pemberton, L. M. Lansky, and M. J. Bradbury

We are a nation of tinkers. Often, new ideas work, or seem to work, at least for a time, because they are new. People and organizations respond to change, to innovation. Rarely, however, do social changers carefully evaluate their efforts.[1] The First National Congress for Environmental Education Futures was to be an exception. Not only was the program to be evaluated, but the evaluation was designed to coexist with and to affect the planning, execution, and followup of the program.

This account contains six sections: (1) a brief summary of the goals and functions of the Alliance for Environmental Education since its inception in the early 1970's; (2) some specific actions, beginning in the 70's and by which the Alliance has had some direct influence on the planning and ideas behind the present Congress; (3) a listing of the goals and aims of the Congress itself--taken from its own documents; (4) a description of the efforts of the evaluation team; (5) the status of these efforts when the Congress opened; and (6) responses at interviews and from Congress participants to questionnaires.

1. Alliance for Environmental Education (AEE): Ten Years of Growth and Influence[2]

The AEE was founded in the early 70's by a few organizations. Affiliated organization membership grew to 30-strong and represents the diverse interests of youth, physical fitness enthusiasts, naturalists, educators, labor unions and research institutes.

To nurture environmental education, the AEE has:

Sponsored national and regional conferences to exchange information on environmental issues.

Developed and promoted operational guidelines for sound environmental education.

Advised the Federal government on its role in international conferences on the environment.

Represented the non-governmental sector in oversight and implementation of the Environmental Education Act of 1970.

To consolidate past gains and assure a strong environmental presence, the Alliance for Environmental Education is active nationwide. It:

---

[1] William R. Meyers. The Evaluation Enterprise. San Francisco: Jossey-Bass, Inc., 1981, pp. 253.

[2] From AEE promotional material, fall 1982.

- Provides materials and services which will promote environmental literacy among our citizenry.

- Plans national and affiliate strategies for environmental education for the next twenty years.

- Develops and promotes guidelines to help state and local officials meet the need for growth and development without disrupting delicate ecosystems.

- Attracts media interest to environmental education concerns.

The Alliance, since its inception, has held and participated in various national conferences (see Section 2). At the request of two of its affiliates in 1981, the Alliance held the Congress for Environmental Education Futures in August 1983. This was the first attempt by the Alliance to facilitate activity among and between the affiliates themselves.[3] It is the first time the Alliance used a team of highly trained evaluators to monitor management, planning and implementation processes for such meetings.

2. AEE and the EE Community Efforts During the 70's: Background to the Congress

No monitoring has been made of many substantive recommendations emanating from previous national policy conferences held since the 70's. These include from 1970 through 1977:[4]

- National Conference on Environmental Education -- December 1970 held in Green Bay, Wisconsin and sponsored by the University of Wisconsin-Green Bay, National Audubon Society, U.S. Office of Education, Wisconsin Department of Public Instruction and the Wisconsin Cooperative Educational Service Agencies. Invited authorities with successful experiences in environmental education came together from many parts of the country to discuss materials and strategies with the end in view of formulating a model plan to provide guidance for the EE field.

- National Conference on Environmental Studies Programs in Higher Education -- November 30-December 2, 1972 held in Green Bay, Wisconsin and sponsored by the Wisconsin Environmental Educational Council, the U.S. Office of Environmental Education, the Conservation Foundation and the Audubon Society. Based on personal experiences of UWGB, the results of other conferences on environmental education, as well as the report of Aldrich and Kormandy *Environmental Education: Academia's Response* (1972), higher education clearly was in need of new approaches to interdisiplinary programs dealing with environmental issues. Thirteen problem areas were identified and individual work groups formulated recommendations which would be useful to institutions of higher learning and governmental agencies.

---

[3] Conversations with former presidents of AEE.

[4] William B. Stapp. "Elements of a National Strategy for Environmental Education," *From Ought to Action In Environmental Education*. The Ohio State University, ERIC/SMEAC, 1978, pp. 35-41.

- National Working Conference on Emerging Issues in Environmental Education -- June 3-6, 1974 held in Ann Arbor, Michigan and sponsored by the School of National Resources of the University of Michigan and the U.S. Office of Education, HEW. Based on extensive pre-conference research and questionnaires, nine issues emerged for which short papers were produced to serve as working documents for the conference. In addition, the conference work provided a check list of criteria for planning and evaluating environmental education programs deduced from the conference transcripts and letters of response from participants.

- Environmental Education Perspectives and Prospectives Conference -- July 6-12, 1975 held in Snowmass, Colorado and sponsored by the Alliance for Environmental Education and the Western Regional Environmental Education Council. A select group of people representing a wide variety of expertise and interest - education, ecologists, representatives of government agencies, of labor, industry and business, and of environmental and conservation groups. Major and overriding concerns which affected any number of fields were studied and recommendations were made to appropriate audiences.

- Belgrade International Workshops on Environmental Education -- October 13-22, 1975 held in Belgrade, Yugoslavia sponsored by United Nations Educational, Scientific and Cultural Organization and United Nations Programs. Belgrade Workshop was a combination of the first phase of a project aimed at developing an overall framework and direction for cooperative international program to further environmental education. Over 100 educational specialists from 64 countries worked on the assessment of fourteen state-of-the-art papers on different aspects of environmental education. Participants amended and refined these papers, formulated guidelines and made recommendations for the promotion of worldwide environmental education.

- North American Regional Seminar on Environmental Education -- October 5-8, 1976 held in St. Louis, Missouri and organized by the Alliance for Environmental Education was developed at the workshop held in Belgrade in October of 1975 and had the broader context of an international or global environmental education focus.

- Intergovernmental Conference on Environmental Education -- October 14-26, 1977 held in Tbilisi, U.S.S.R. in which the Alliance participated in the development of the document used by the U.S. delegation to the international conference. This was a category II meeting in which there were official delegations from approximately 70 countries.

- From Ought to Action in Environmental Education -- March 28-30, 1978 held in Washington, D.C. This national leadership conference was designed so that people having decision-making responsibility for the development and implementation of environmental education could work together on measures for coordinating and expanding environmental education to meet local, state and national means.

In the proceedings of this Conference, From Ought to Action in Environmental Education, the then president of the Alliance for Environmental Education, Rudolph J. H. Schafer, pledged that the Alliance would perform three services regarding implementation once the recommendations developed. That is

"1. To broker the recommendations--that is, to see that everyone followed through as promised and that all possible steps are taken to implement the recommended action strategy;

2. To keep participants informed as to the progress of the recommendations; and

3. To assume responsibility for seeing that the final conference report was produced and distributed."[5]

Members of the Alliance Board were approached in 1981 by officers of three of their affiliates to coordinate an assessment, a follow-up to the 1978 meeting regarding AEE pledges and the progress of EE in the U.S. since the Ought to Action Conference. The then president of the Alliance, Charles Roth, sent out invitations to some forty environmental groups, including all of the affiliates, to attend a symposium in January of 1982.

At that meeting, 29 national and international environmental education organizations determined that the AEE/Schafer pledge had not been productive. Also, that no monitoring had been made of many of the substantive recommendations emanating from the previous national policy conferences held since 1970 that had involved the Alliance leadership! They found that environmental educators and their organizations during the 70's often worked separately, competing for limited funds and achieving similar results almost as though these conferences had never taken place. It was within this context that the organizers of the First National Congress for Environmental Education Futures: Policies and Practices determined to follow through with results. Hence, the Evaluation Team was formed to design a strategy of monitoring and assessment to co-exist with and to effect planning, execution and follow-through of the program. Padalino proposed, and the group concurred in, a management strategy for the Congress that would involve a planning committee composed of affiliate members who would chair a team responsible for a section of activity at the Congress. It was hoped that by having the leadership of many of the affiliates involved in the '83 Congress, it would lead the affiliates to assume responsibility for carrying out the recommendations and strategies developed there.[6]

It was at the first planning meeting for the Congress[7] that agreement was reached on how to follow up specifically on the 1978 Conference: Each person who preregistered for Congress would be sent a copy of From Ought to Action for study and review.

---

[5] Ibid. p. 2

[6] Dixie A. Pemberton, Minutes of the Symposium in Washington, D.C., January 1982. Horn Point Environmental Laboratories (HPEL) University of Maryland Center for Environmental and Estaurine Studies (UMCEES), February 1982. pp. 18.

[7] Dixie A. Pemberton, notes from the meeting of the Planning Committee for the Congress in Racine, WI, November 1982.

3. The Goals and Aims of the Congress Itself

Documents such as the minutes of the January 1982 meeting, the concept proposal generated there, and the program itself, indicate that the Congress was conducted for leaders in environmental education. Its purpose was to share common goals, common fates, common concerns, and common methodologies without losing the individuality of the organizations or sight of what our common ground is. Environmental Education needs to have the power that lay in these individual differences and commonalities. Accordingly, the purposes of the Congress were:

"For diverse groups with an interest in environmental education to collectively address the national issues in environmental education for the 1980's and to provide a unified voice for the field; and the objectives are:

- To explore future trends and implications for education, culture, and the environment
- To share current knowledge and techniques in environmental education and innovations for the future
- To structure a major policy statement and a five-year action plan for environmental education."[8]

Participants chose one of two tracks to follow during the conference: policies or practices. Only those registered for the policy sessions received From Ought to Action but both were asked in subsequent communication to remain with their respective interest groups throughout the Congress until the general session.[9]

The program included: (1) vehicles for teaching global ideas, for teaching substantively for life and career demands for the '90's or the year 2000. These are the years in which the present elementary, and junior high students will become voters; and (2) the politics of making #1 happen.

4. A Description of the Efforts of the Evaluation Team

The Evaluation Team was committed to design a model that would have validity and usefulness both with and without subsequent funding. It was to produce in a timely manner usable information reflecting Congress goals and model; to lend itself to later in-depth analysis and reporting on the planning, execution and followup of the Congress.

---

[8] Program for the First National Congress on Environmental Education Futures, Burlington, VT, August 12-17, 1983.

[9] Dixie A. Pemberton, Notes from the Second Meeting of the Planning Committee, Burlington, VT, January 1983.

Evaluation Team

On Friday, October 1, 1982, the Congress Evaluation Team (ET):[10] Marilee Bradbury, David Kennedy, Leonard M. Lansky, June McSwain, and Dixie Ann Pemberton met at the Horn Point Environmental Laboratory. They designed a plan and a management strategy for carrying out an evaluation. This work reflected the fact that the Congress itself was

- circumscribed by the Concept Proposal generated in the January '82 Steering Committee meeting,
- shaped by the Alliance affiliates' negotiations on whether to be sponsors and co-sponsors; and
- limited by time dilemmas imposed by (a) the acceptance in January '82 of an August, 1983 date for the Congress; (b) the five-month search for a leader for the program committee; (c) the nine-month contract negotiations among sponsors and AEE; and (d) the consequent delay of the first meeting of the planning committee until Fall 1982.

ET Develops Game Board

Before dissolving itself January 29, 1982 the Congress Steering Committee adopted a proposed management strategy for the Congress. It consisted of six committees and a congress coordinator. The Planning Committee was composed of chairs of each of these committees. The Steering Committee adopted and the Planning Committee agreed, to use a Planning Handbook for the Congress.[11] By the time of the second Planning Committee meeting in Vermont (January 1983), few Chairs had any use for the Handbook.[12] During this meeting the Program Committee divided into two tracks: a policies track chaired by John Paulk and a practices track spearheaded by Talbert Spence in coordination with John Paulk. The Publicity Committee was also expanded: John Gustafson agreed to chair a Committee on Publications and to coordinate his work with Kathleen Blanchard, the chair of Publicity.[13] The grid on Figure 1 includes these later developments.

At the top of the chart are the names of each of the Planning Committees. Down the side are the basic elements of functional evaluation. Each cell of the matrix is a data block. ET planned for these data blocks to be summaries of processes and things: "Processes" (P), such as personal interactions, telephone calls, and linkages, and products or "things" (T), such as letters, planning documents, minutes and so forth. In the legend on Figure 1, T is used to indicate "things" or products, P to indicate "process," B to indicate "both" things and processes, and N to indicate that "neither" would be appropriate. Lower case letters t, b, n are used to indicate items "to be negotiated."

---

[10] Two team members were not present. Names and credentials of ET are found at the end of this document.

[11] See Evaluation Planning Meeting Report 1, HPEL/UMCEES November 1982.

[12] See Evaluation Planning Meeting Report 2, HPEL/UMCEES, April 1982.

[13] See Minutes of the Second Planning Meeting held in Burlington, VT, Pocono Environmental Education Center: Dingman's Ferry, PA, January 1983.

	MANAGEMENT OF EVALUATION									
	PROGRAM		ARRANGEMENTS	PUBLICITY		REGISTRATION	FISCAL	EVALUATION	CONGRESS CORDINATION	NOTES
PRE-RACINE (ANTICIPATORY)	T P		T P	T P		T P	T P	T P B	T B (CONTRACT)	Archaelogical Perspective. Only here "P" = Notes on process. T = Notes regarding Alliance Fducation Bd. and other groups, i.e. product or things.
PLANNING	tbn Policy Track I	Practices Track II	tbn	tbn Publicity	Proceedings Tracks I & II	tbn	tbn	B		Both process and products are to be negotiated.
IMPLEMENTATION										
PRODUCTS										
IMPACT			N			N			N	
MODEL										

All contigent on Row 2 (Planning)

T = Things or products
P = Processes
B = Both processes and products
N = Neither processes products
tbn = To be negotiated

FIGURE 1: THE GAME BOARD

Negotiations

Because each Committee had its own way of doing things and defining its group and group tasks, the ET worked to negotiate with each Planning Committee member an agreement on how many and what kinds of P's and T's were to be collected and the frequence and level of interaction between the each chairperson and a member of ET.

The Action Chain

The following (see Figure 2) shows the interactions among chairpersons and the ET members in acquiring data and provides a graphic of the negotiations and dynamics of the evaluation process which underlay the gameboard as the planning of the Congress progressed.

LINKAGES DURING THE CONGRESS PLANNING

WHEN	WHAT	WHO	STATUS
Daily	• P's and T's entered into chronological file or log	by Chair on Planning Committee	Yes, all
Weekly	• Log xeroxed and mailed	by Chair or Designee, i.e., "Linker"	Publicity Registration (partial) (Rest: Post-Congress)
Biweekly	• Questionnaire - interactive	between Chair or Linker and Evaluation Team Member	Yes, as much as we know

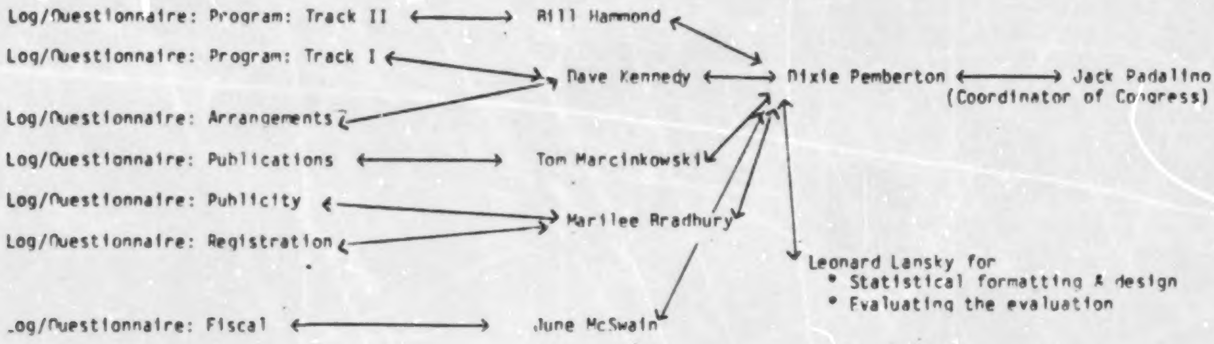

Log/Questionnaire: Program: Track II
Bill Hammond
Log/Questionnaire: Program: Track I
Dave Kennedy
Dixie Pemberton
Jack Padalino
(Coordinator of Congress)
Log/Questionnaire: Arrangements
Log/Questionnaire: Publications
Tom Marcinkowski
Log/Questionnaire: Publicity
Marilee Bradbury
Log/Questionnaire: Registration
Leonard Lansky for
• Statistical formatting & design
• Evaluating the evaluation
Log/Questionnaire: Fiscal
June McSwain

FIGURE 2. EVALUATION DATA COLLECTION

The Role of the Evaluation Team

The ET members contacted its chair whenever there was a need for possible change in plans or function in one or another committee which they felt should be conveyed to the Congress Coordinator. This was because the ET saw itself primarily as a group of score keepers concerned with systematically collecting and coding data and eventually subjecting it to analysis. They did not see themselves as monitors, since between October and March this "flagging" occurred but three times.

The Evaluation Team determined that this role should stay objective, but this proved difficult as only half of the ET were "outsiders" to the Alliance leadership. It was the consensus that ET linking with the Planning Committee could be enhanced if the Coordinator had a monitoring group. Alternatively, members of the ET might play such a role in a limited way in addition to its "flagging."

During the March '83 meeting ET examined each cell and as much of the data as available and made a written progress report to the Planning Committee (April '83),[14] including the observations and proposal above. No action by the Coordinator was taken regarding the monitoring task.

---

[14] Evaluation Planning Meeting Report 3, op. cit.

5. The Status of the Evaluation Effort When the Congress Opened

In early August the ET met for the third and last time for several purposes:

- to plan for gathering data on the implementation phase of the Congress over August 12-17, 1983;
- to explore what gaps, if any, existed in ET having information and data on the processes and operations of the Congress model; and
- to develop multiple strategies for handling data, both with and without subsequent funding.

This section contains a brief description of the ET plans, development processes and the mechanisms used at the Congress to check onthe status of the evaluation.

Checking on the Status of Evaluation

As a first step, the original Game Board (Figure 1) was restructured to highlight each phase in this multiple-year effort, Figure 3 (next page). Each phase has boxes to show an event or component that was considered core to the phase. Most of the elements or the component could then be posted to facilitate a systematic exploration of where gaps in information existed so that those gaps could be covered when gathering the additional data.

Thus in phase one and for boxes 1 and 2, ET has minutes, copies of contracts and notebooks kept by the Coordinator and the two sponsors. However, since serious delays in holding the first planning meeting were attributed to contracting (#3), ET designed a questionnaire for sponsors on this factor, and made it short for several reasons.

The ET meeting (third phase) found that no added funding had resulted from Pemberton's April-May efforts. Thus only important (essential) data relative to the Congress implementation, in readily usable form and in minimal amount, would be gathered. "Important" was defined as providing pertinent information about the Congress goals or the operations of the model or the future potential of the Congress for replication.

In checking #15 (Figure 3), further insights were needed into the relationship of the Congress goals and the components of the model - tracks 1 and 2 plus social events, field trips, speakers, arrangements, financial, publicity, and registration. This would be gleaned from a questionnaire.

Now three questions were included with registration, and the post-questionnaire was included in the registration packets assembled at the Congress, per March Evaluation Team meeting plans, #11. ET re-examined these questions and posted their "substance" so as to avoid redundancy. These considerations shaped a retrospective questionnaire and would be used to supplement information from evaluation team members' notes on site. Those notes were only on what was observed and "important" as defined above.

REORGANIZATION OF CONGRESS MODEL

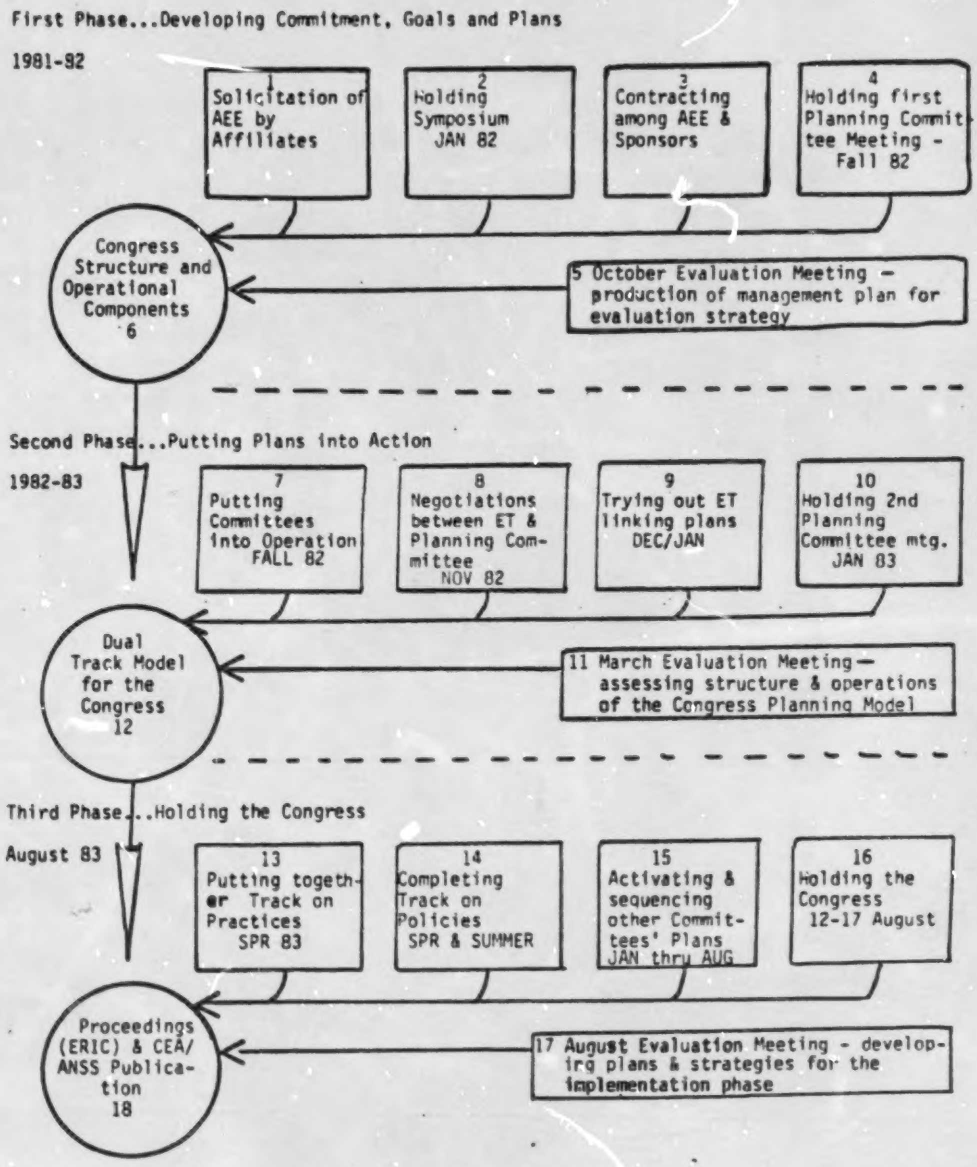

First Phase...Developing Commitment, Goals and Plans
1981-82
1 Solicitation of AEE by Affiliates
2 Holding Symposium JAN 82
3 Contracting among AEE & Sponsors
4 Holding first Planning Committee Meeting - Fall 82
Congress Structure and Operational Components 6
5 October Evaluation Meeting — production of management plan for evaluation strategy
Second Phase...Putting Plans into Action
1982-83
7 Putting Committees into Operation FALL 82
8 Negotiations between ET & Planning Committee NOV 82
9 Trying out ET linking plans DEC/JAN
10 Holding 2nd Planning Committee mtg. JAN 83
Dual Track Model for the Congress 12
11 March Evaluation Meeting — assessing structure & operations of the Congress Planning Model
Third Phase...Holding the Congress
August 83
13 Putting together Track on Practices SPR 83
14 Completing Track on Policies SPR & SUMMER
15 Activating & sequencing other Committees' Plans JAN thru AUG
16 Holding the Congress 12-17 August
Proceedings (ERIC) & CEA/ANSS Publication 18
17 August Evaluation Meeting - developing plans & strategies for the implementation phase

Figure 3. Reorganization of Figure 1 to highlight phases and processes in the evaluation of the Congress.

The retrospective questionnaire was sent out a few days after the Congress to preserve clarity onthe experience; notes were collected by Pemberton on site, daily.

From the second phase, #12, i.e., tracks 1 and 2, there are the proceedings and the journal material from which to derive the things: the T's only. A mechanism was needed to derive a better understanding of the processes inherent in both tracks 1 and 2. Interviewing was the elected mechanism.

Since there were only eight facilitators, ET interviewed all eight. However, since there were 54 separate practice workshops, ET used a systematic random sample of 10. To decide which of the team would do the interviewing, ET members began to list their schedules and these time contraints operated as a built-in selector. Later two of the presentors selected on the Practices Track cancelled their sessions and two additional members had to be selected.

ET felt that the interactions with Planning Committee members would end once these chairpersons have this report in hand. Their feedback, however, should be included. Accordingly they will get a questionnaire with a semi-final draft of this report. If time permits, their feedback will be added to it before the proceedings are published. These considerations shaped the questionnaire for members of the Planning Committee. Again questions were kept to a minimum to ensure that the feedback received would be in a "usable" quantity and would not create an additional burden.

Closure

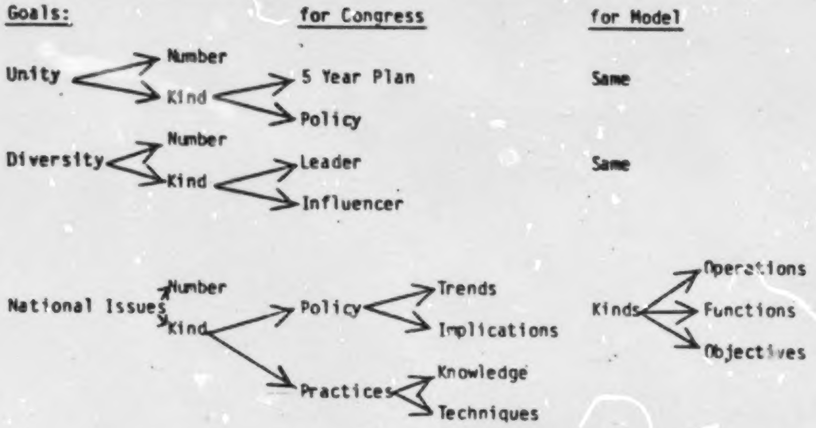
With the completion of these strategies and documents ET checked the whole conference model, its design and operation to make sure that all the bases on the gameboard (Fig. 1) were covered and that as scorekeepers ET could continue to record the benchmarks (Fig. 3) of the implementation phase between August 12-17.

One last task remained and that was to design criteria, strategy and procedures for dealing with records and information from all phases of evaluation, particularly with the volume of detail expected in the notebooks kept by the Planning Committee.

Criteria

The statement of purpose and objectives of the Congress are clearly given on page 1 in the program book: "For diverse groups with an interest in environmental education to collectively address the national issues in environmental education for the 80s and to provide a unified voice for the field."

The Evaluation Team underscored the words diverse, national issues and unified voice and determined to review all data for both numbers and kind (see Figure 4). That is, whether diverse groups were represented by individuals, by leaders, or by influencers. Whether national issues showed up: in policy futures track in terms of trends and implications; in the futures practices track, in terms of knowledge and techniques. "Unified voice" - this concept would also be tracked in terms of both number and kinds - the kind of resolutions and action plans, commitments and so forth. ET determined that based on this "filter," all Ps, Ts, and problems, regardless of the data source, would only be examined relative to the purpose of the Congress and to the operations of the model. At a micro and macro scale these criteria or filters for information and its classification look like this:


Criteria for Classifying Important P's, T's of Problems

Goals:
for Congress
for Model
Unity
Number
Kind
5 Year Plan
Policy
Same
Diversity
Number
Kind
Leader
Influencer
Same
National Issues
Number
Kind
Policy
Trends
Implications
Practices
Knowledge
Techniques
Kinds
Operations
Functions
Objectives

Figure 4. A common filter to handling all evaluation data from all sources.

In applying this mode, the scorekeeper selects something that occurred which was really important, either toward the achieving the goals and objectives of the program or in defining the model. Next this would be classified as to whether it was within the committee, that is at a "micro" level, within a team dealing with internal operations to achieve the goals of that particular team, i.e. program or registration or evaluation, etc. It was at the "macro" level if it was between or among committees, such as the January meeting in Burlington, VT or the negotiations between members of the evaluating team and a chairperson or members of the Planning Committee. Next the scorekeeper would look for patterns that emerge from such an analysis about the purposes, natures, goals, organizations, functions, and flows of the Congress structure or operations during its three major phases per Figure 3. As the examination of the records proceed, each scorekeeper will note all recommendations that come from the Planning Committee members, sponsors, participants, and finally from themselves as evaluators.

Strategy and Procedures

At the Congress each member of the Evaluation Team made arrangements to receive notebooks from the Planning Committee and sponsors. (Figure 2).

Each of the ET members agreed to write a draft of an Executive Summary similar to a Lawyer's Brief of 2 to 4 pages of text. It will include a title of the Congress Model component (Figure 1), and give a generalized statement that describes what actually happened within the team and between committees. This will be based on patterns that emerged as they sort and classify information. Next, notes or citations, i.e., "evidence" from the data sources, will give substantiation to the statements of generalized patterns. These notes might well be in the form of diagrams or flow charts. The fourth part will present whatever recommendations emerged, either from the committee perspective or from the evaluation perspective.

ET set a goal of six weeks for the draft once the respective notebooks are received. Should there be a delay in receiving the notebooks, the "briefs" will be used in a subsequent monograph rather than delay the proceedings.

6. Response from Interviews and Questionnaires

Interviews with all eight facilitators showed that some of the larger groups fluctuated from between 30 to 17 people and that three of the groups averaged around 22 members. The three smaller groups ranged from a maximum of 12 members to 7 members. There was a concensus among the groups that the resolutions From Ought to Action reflected a different time and space and that it was difficult for those present to feel ownership of those resolutions, taking issue with many of them and isolating 4 or 5 they felt they could actually deal with, i.e. have relevance today. With these they then formed lists of additional resolutions, and broke into small groups to deal with the material at hand. Four of the six groups committed themselves to work together to carry out the work they outlined and to maintain contact with each other regardless of what the Congress did about their final recommendations. Universally, the facilitators felt that presentations by the resource experts, while interesting or stimulating, actually interferred with the task, given the nature of their groups, i.e., many leaders and experts in their own right.

Interviews with a systematic random sample of ten presentors showed techniques ranging from the traditional slide-lecture to interactive dramatics organized around themes, still far more one-directional communication than multi-directional. Techniques included, among many, using one's body to be as comfortable as an animal, pantomining to convey a synthesis of an experience, role playing as a person living in another world for fifteen years and having to be reconditioned into the U.S. as it may be then. The enthusiasm of the presentators showed most of them to be highly skilled in the teaching behaviors necessary to integrate attitudes, feelings, perceptions, knowledge and new understandings for those present. Half volunteered new understandings they themselves gained from those present in their sessions.

Insights from the Final Questionnaire

A final questionnaire on the Congress had been placed in each of the registrants' packets. The program booklet called the participants' attention to this fact as did the leader of evaluation, both at the opening of the Congress and the day of the large convocation.

About 30% of the participants filled out this questionnaire, a few mailing theirs after they had left. Participants from the policy track who had attended no practice sessions, responded that their personal goals for networking and wanting to make a contribution in the policies area had been met. Expectations not met were that they would be interacting with national leaders and that too few of these national leaders were available in all groups. Policy track participants that had managed to attend at least two practice sessions had more of their goals met for networking and for deriving a better understanding of what the state-of-the-art is in EE. Those who attended only the practices session and were present for the Tuesday reporting period felt somewhat at a loss in not having had an opportunity to read the policy material prior to each group's presentations. They found themselves buried in reading what was being distributed and unable to partake in or interact on it at any level. They had difficulty in ownership of either resolutions or recommendations; had a feeling of isolation from where the action was. Participants strongly urged a different format not only for the reporting session but for the whole Congress. They urged Congress planners to use professionals in the social sciences to get the type of interaction across tracks that they felt were needed. They also urged better planning for informal times!

Retrospective Questionnaire Well Recieved

On September 1 and 2, ninety of these questionnaires were mailed to a systematic random sample of persons who had attended the Congress based on the registration list provided. By September 14, 47 returns, and by October, 72 returns or 81% of the questionnaires were back. Of the respondents, 22 participated in the policies' track, 37 in the practices' track, 11 in both and 2, while on the list, had not attended the Congress! One from the Planning Committee sent a written response leaving the questionnaire blank. The next page shows the composite responses to item 1 which pertained to the overall goals and objectives of the Congress.

"Sharing of current knowledge and techniques in environmental education" was ranked low on the "personal" but higher on the Congress level by those who had been in the policies track and were unable to get over to the practices track. The second objective can be filled by the publication of the CEA/ANSS Journals of the substance of practices sessions in Spring '84.

Almost 90% commented at the end of the questionnaire. Several concerned the policy statement. These showed that many would have preferred to have reviewed the recommendations in From Ought to Action by correspondence in and among the group prior to the Congress so that the time spent on it at the Congress could have been given to the development of an action program.

The following are representative of other comments grouped topically where at least four (4) spoke of the same or similar concerns.

- Commendation - "To the committee, a job well done. There were very few wrinkles considering the short time span. Thank you."
- Consensus-building at the reporting session - "Found the general session very worthwhile, glad I changed my plans and stayed for it but I think it left some of us with a sense of frustration. There never is enough time. I do have faith in those consolidating the final statement because I know several of them personally and professionally. None of those who do know them were concerned about this aspect."
- Structure of the reporting session - "Overall, I thought the Congress was a worthwhile event. It was great to see 400 people come together, but the diversity of groups involved made a consensus of opinion almost impossible. What was needed was a more orderly procedure."
- Parallel nature of the tracks - "I signed up for the practices track not realizing I would be totally removed from the main reason for the Congress, that is the policy making statement and the implementation plans. Material sent out before the conference was not clear that this would be so. I was very confused as to my purpose for having come as it certainly would not have been to just hear speakers or attend presentations!"
- Field trips and logistics - "Registration for field trips was especially unclear and inadequately planned in my opinion; some events, ill conceived and implemented."
- Mixing of all present - "I found it difficult to concentrate on the policies track I was in with so many incredibly wonderful people offering sessions in the practices track. I would have enjoyed a mixture of the two."
- Timeliness of Congress Communications - "It was a complicated conference logistically. Program and instructions were a bit late in being available for good planning by the participants in advance of their coming. I found the University bureaucracy failed to coordinate their roles and instructions which resulted in bad feelings where conferees were told one thing which was later countermanded. I am astonished that UV could not accommodate everyone for meals that wanted to eat at the site!"
- Serendipity rather than planning - "I preregistered late and got there Friday and left on Saturday morning. I understand from the grapevine that it was simply a great, great experience. I am still kicking myself for not freeing more time up. I got no confirmation of registration and the only reason I was in Vermont was for a Board meeting."

August 25, 1983

Dear EE Congress Participant:

You have been selected in a random sampling to give a personal response regarding the recent Congress experience. Only 90 people have been chosen so please take FIVE minutes of your valuable time, respond to the questionnaire and mail immediately in the stamped return envelope.

Regards from E T (valuation Team)

1. To what extent did the Congress realize its purpose and objectives?

PLEASE MARK THE SCALE ON EACH ITEM BELOW

PURPOSE

For diverse groups with an interest in environmental education to collectively address the national issues in environmental education for the 1980's and to provide a unified voice for the field

0-1-2	3-4-5		Not At All		Circled items = Mid-response			Totally
13.4%	86.6%	The Congress as a whole	0	1	2	3	[✓ 4]	5
22.4%	77.6%	For you Personally	0	1	2	3	[✓ 4]	5

OBJECTIVES

To explore future trends and implications for education, culture, and the environment

15.6%	84.4%	Congress	0	1	2	[✓ 3]	4	5
20.0%	80.0%	Personally	0	1	2	[✓ 3]	4	5

To share current knowledge and techniques in environmental education and innovations for the future

1.5%	98.5%	Congress	0	1	2	3	[✓ 4]	5
6.1%	93.9%	Personally	0	1	2	3	[✓ 4]	5

To structure a major policy statement and a five-year action plan for environmental education

19.0%	81.0%	Congress	0	1	2	3	[✓ 4]	5
33.9%	66.1%	Personally	0	1	2	[✓ 3]	4	5

Figure 5: Retrospective Questionnaire (Summary)

2. Social events, field trips, and speaker sessions were designed specifically to provide opportunities to meet people, explore ideas, a form alliances. Did this happen?

0-1-2	3-4-5	SOCIAL EVENTS	Not at All			Circled items = Mid-response		To a Significant Degree
31.1	68.9	Meet people	0	1	2	3	[✓ 4]	5
14.9	95.1	Explore ideas	0	1	2	3	[✓ 4]	5
21.1	78.9	Form alliances	0	1	2	[✓ 3]	4	5
		FIELD TRIPS						
22.2	77.8	Meet people	0	1	2	3	[✓ 4]	5
29.6	70.4	Explore ideas	0	1	2	[✓ 3]	4	5
42.3	57.7	Form alliances	0	1	2	[✓ 3]	4	5
		SPEAKER SESSIONS						
28.1	71.9	Meet people	0	1	2	[✓ 3]	4	5
17.4	92.6	Explore ideas	0	1	2	3	[✓ 4]	5
49.1	51.9	Form alliances	0	1	2	[✓ 3]	4	5

3. Feedback on local arrangements, fiscal matters, publicity and registration will be useful in planning future Congresses.

		ARRANGEMENTS (comfort, space, amenities, scheduling)							
9.3	90.7	Inadequate	0	1	2	3	[✓ 4]	5	Adequate
		FISCAL MATTERS (cost for food, lodging, registration, field trips, etc.)							
9.2	90.8	Unreasonable	0	1	2	3	[✓ 4]	5	Reasonable
		PUBLICITY (timing, thoroughness, clarity)							
34.3	65.7	Inadequate	0	1	2	[✓ 3]	4	5	Adequate
		REGISTRATION PROCESS (Track information, field trips, social events, food, lodging)							
35.4	64.6	Unsatisfactory	0	1	2	[✓ 3]	4	5	Satisfactory

4. Please respond to the following items:

- Circle the track you attended: 22 policies, 37 practices, 11 both, 3 N/A
- Circle your track interest group: 26 K-12, 10 Higher Ed, 13 Govt, 4 Bus/Ind, 7 youth, 13 Citizen
- Circle your number of days at Congress: 1 1, 3 2, 8 3, 10 4, 255 5, 206 6, 3 Blank
- List your EE organizational affiliations: 56 organizations were listed although 8 returns left these lines blank. American Nature Study Society and the Conservation Education Association, both sponsors, were more frequently cited although The National Association for Environmental Education, the National Audubon, and the National Wildlife Federation showed a strong presence.

5. If you choose to, share comments on these questions or on any other aspect of the Congress below. ______________________________

____

Figure 5 (cont): Retrospective Questionnaire (Summary)

Conclusion

The material in part 6 is only a partial presentation of an initial examination of the information gathered during the Congress itself and from the retrospective questionnaire to participants. Only when these responses are examined in depth and compared with other information will a more precise picture emerge.

Acknowledgements

Each person on the planning committee for the Congress has been extended the opportunity to acknowledge the participation of their team members. As leader of the evaluation team I wish to extend my heartfelt appreciation to each of the following: Dr. Marilee J. Bradbury, Social Studies teacher from the Jefferson County Public Schools in Colorado. Marilee is a curriculum specialist, has published extensively in this area, has been recognized both locally, nationally and internationally as a master teacher and continually functions to keep the evaluation practical and useful. Dr. David A. Kennedy, a supervisor of science and environmental education programs from Olympia, Washington, is a skilled facilitator and provided the continual perspective of the knowledgeable county supervisor. Mr. Thomas Marcinkowski, residential program director of the Ecology House at Cornell University, recently completed an extensive literature search on all evaluation dealing with environmental education programs. His theoretical base and understanding of the appropriate literature was invaluable. Ms. June McSwain, director of education for the American Forest Institute in Washington D.C., supplied the perspective of the national program manager. Having worked extensively with Project Learning Tree, she brought an immediate understanding of the national scene. Dr. Jo Anne Young is facilitator for gifted education at the Coleman Junior High School, Wichita, Kansas. Her interest in cognitive styles and modes of learning inform her whole approach to evaluation design and development. Dr. Leonard M. Lansky, professor of psychology at the University of Cincinnati, was the facilitator for the group as they worked on the overall designs and strategies for evaluating the model and the planning processes of the Congress. Dr. Lansky provided the continuous hands-on help that only a scientist who has spent much of his professional life as a specialist in evaluation and assessment processes could have provided. To each of you for your sizable professional contribution, many hours in meetings, working on documents, critiquing proposed designs and mechanisms and strategies, we extend our thanks.

The Edison Electric Institute, an association of electric companies, supported the evaluation through a cash grant to the Alliance for the ET work. These funds were matched by in-kind contributions from HPEL-SMCEES. We thank both institutions for their support.

Dixie A. Pemberton, Ph.D.
Associate Professor

Appendix B: Roster of Registrants

A. Susan C. Abbott, 2172 Virginia Avenue, Fort Myers, FL, 33901.
Isabel S. Abrams, 2216 Schiller Avenue, Wilmette, IL, 60091.
Dr. Andrew S. Adams, Department of the Interior, Washington, DC.
James L. Aldrich, Massachusetts Audubon Society, Lincoln, MA, 01773.
Darlene B. Allen, 17 Jamestowne Lane, Davison, MI, 48423.
Margaret M. Ambry, 143 Fox Hill Road, Denville, NJ, 07834.
Dr. Edward Ambry, 143 Fox Hill Road, Denville, NJ, 07834.
Allan Anderson, Mead Pond Land, Rye, NY, 10580.
Mrs. Eddie Anderson, USDA, For. Serv., Rm. 3233, Box 2417, Washington, DC, 20013.
Dr. Eddie Anderson, USDA, For. Serv., Rm. 3233, Box 2417, Washington, DC, 20013.
Susan Antenen, Wave Hill, 675 252 St., Bronx, NY, 10471.
Sandra D. Ashnault, Artist Falls Road, North Conway, NH, 03860.

B. Dr. Ellis Bacon, Great Smokey Mt. Nat. Hist. Assoc., Gatlinburg, TN, 37738.
Anne K. Baker, 14 South Williams Street, Burlington, VT, 05401.
Dr. Cindi Baker, 3830 Richmond Ave., Houston, TX, 77027.
Salma Baksh, 2A Pro Queen St. ARIMA, Trinidad & Tobago.
Yasmin S. Baksh, Dept. of Bio Sci., Univ. of West Indies, St. Augustine, Trinidad.
Dr. Richard J. Baldauf, 610 Shamrock Drive, Little Rock, AR, 72205.
Mrs. S. Glidden Baldwin, RR3, Buckhorn Road, Gatlinburg, TN, 37738.
Dr. S. Glidden Baldwin, RR3, Buckhorn Road, Gatlinburg, TN, 37738.
Dr. Desh Bandhu, Asian Env. Soc., Land Arch, IP Estate, New Delhi, India.
David Barash, Shelburne Farms Resources, Shelburne, VT, 05482.
Susan Barker, 1409 Muskopf, Dupo, IL, 62239.
Margaret Barker, VT Inst. Nat. Science, Woodstock, VT, 05091.
Lloyd H. Barrow, 212 Shibles Hall, Univ. of ME, Orono, ME, 04469.
George P. Bartnik, TVA - Land Between The Lakes, Golden Pond, KY, 42231.
Alexander Barton, 3818 North Vernon Street, Arlington, VA, 22207.
Arlene Barton, 3818 North Vernon Street, Arlington, VA, 22207.
Tommy Bates, 523 North Main #118, Stillwater, OK, 74075.
Dollard Beaudoin, 1694 Beausejour Street, St. Lambert-Beauce, Quebec, Canada.
Sam Belf, 5400 Fieldston Road, Bronx, NY, 10471.
Sheila Bennett, RFD 1, Box 3410, Mt. Vernon, ME, 04352.
Dean Bennett, RFD 1, Box 3410, Mt. Vernon, ME, 04352.
Lucille Bertuccio, 94-16 75th Street, Ozone Park, NY, 11416.
Donald Bielefield, 2647 Las Gallinas Ave., San Rafael, CA, 94903.
Clarence E. Billings, 812 Boonville Road, Jefferson City, MO, 65101.
D. Blanchard, Massachusetts Audubon Society, Lincoln, MA, 01773.
Kathleen Blanchard, Atlantic Ctr. Env., 39 S. Main St., Ipswich, MA, 01938.
Shaw Blankenship, TVA - 226 Nat. Res. Building, Norris, TN, 37828.
Karolina Bodner, Young's Road, Barrington, NH, 03825.
Helen Boland, SR 110, Wendell, MA, 01379.
Richard J. Borden, Psy. & Hum. Eco., Col. of Atlantic, Bar Harbor, ME, 04609.
Duane Bosworth, 8707 Sheridan Farms Court, Springfield, VA, 22152.
Woodward S. Bousquet, Warren Wilson College, Swannanoa, NC, 28778.
Marilee Bradbury, 1240 South Reed Street, #6, Lakewood, CO, 80226.
Barbara Brainerd, Box 245, Varnum Road, W. Brooksville, ME, 04617.
John Brainerd, Box 245, Varnum Road, W. Brooksville, ME, 04617.

Marc Breslav, 7 Cesario Place, Port Chester, NY, 10573.
Michael Brody, 37F Hasbrook Apartments, Ithaca, NY, 14850.
Fred Bubb, SCS, Box 985, Harrisburg, PA, 17108.
Richard P. Buegler, 80 Mann Avenue, Staten Island, NY, 10314.
Susan Burleigh, 242 West 71st Street, New York, NY, 10023.
Phyllis S. Busch, P.O. Box 1566, Lakeville, CT, 06039.

C. Michael Caduto, Vt. Inst. of Nat. Science, Woodstock, VT, 05091.
Mrs. I. Calderon, Central Park W. at 79 St., New York, NY, 10024.
Ismael Calderon, Central Park W. at 79 St., New York, NY, 10024.
Nancy Calhoun, Canonchet Road, Hope Valley, RI, 02832.
Barbara Cannizzaro, 11 Flint Lane, Jericho, NY, 11753.
S. Cardamone, 2408 Sherwood Hills Road, Minnetonka, MN, 55343.
Dr. J. M. Cardamone, 2408 Sherwood Hills Road, Minnetonka, MN, 55343.
Jean Case, Route 1, Box 171, Sharon, CT, 06069.
Marshall Case, Route 1, Box 171, Sharon, CT, 06069.
Anne E. Cassidy, 110 Maxwelton Ct., Univ. of KY, Lexington, KY, 40506.
Cleti Cervoni, 346 Grapevine Road, Wenham, MA, 01984.
Nicholas Ceto, III, P.O. Box 482, Essex Junction, VT, 05452.
Debra Chapman, 4N982 Crane Road, St. Charles, IL, 60174.
Dr. Craig C. Chase, Slippery Rock University, Slippery Rock, PA, 16057.
Margie Christie, 204 Christopher Lane, Burleson, TX, 76028.
Delia Clark, Norman Sanc., 583 Third Beach St., Middletown, RI, 02840.
Bernard L. Clausen, 903 Columbia Drive, Cedar Falls, IA, 50613.
Mrs. Ron Cleminson, Memphis State University, Memphis, TN, 38152.
Ron Cleminson, Memphis State University, Memphis, TN, 38152.
Anne C. Cloutier, RD 1, Box 268, Dingmans Ferry, PA, 18328.
Avadna Coghill, Box 30, Braddock Heights, MD, 21714.
Diana Cohen, RFD 1, Box 149D, Lubec, ME, 04652.
Michael Cohen, RFD 1, Box 149D, Lubec, ME, 04652.
Trish Coholan, 60 Siders Lane, Falmouth, MA, 02540.
Tom Colwell, 325 Germonds Road, West Nyack, NY, 10994.
Isabel D. Constable, 19 William Penn Drive, Stony Brook, NY, 11790.
Tony Cope, 418 D East Taylor Court, Savannah, GA, 31401.
Peter Corcoran, College of the Atlantic, Bar Harbor, ME, 04609.
Isaac Corkland, 2728 NE 32nd Street, Fort Lauderdale, FL, 33306.
Marie Corloin, Chewonki Foundation, Wiscasset, ME, 04573.
Jennette S. Cortez, 116 Central Park South, New York, NY, 10019.
Hollis D. Crawford, RT 1, Box 21, Gibbs, MO, 63540.
Sheryl Crockett, RFD 1, Box 149B, Lubec, ME, 04652.
Malcolm P. Crooks, P.O. Box 297, Solebury, PA, 18963.
George Curtis, Old Ponsett Road, Haddam, CT, 06438.
Jean P. Curtis, Old Ponsett Road, Haddam, CT, 06438.

D. David Darst, 3382 Mark Lane, Norton, OH, 44203.
Bob Darula, University of Wisconsin, Green Bay, WI, 54301.
Diane Davies, Rock Eagle 4-H Center, Eatonton, GA, 31024.
Rickenda A. Davis, 523 North Main #118, Stillwater, OK, 74075.
Nancy A. DeGroff, Barre-Montpelier Road, Barre, VT, 03641.
Bob Delfay, NSSF, 1075 Post Road, Riverside, CT, 06878.
Alice Delong, RFD 1, Box 770, Moretown, VT, 05660.
Miriam Dickey, 183 Manthorne Road, West Roxbury, MA, 02132.
John F. Disinger, 5377 Roche Drive, Columbus, OH, 43229.
Susan W. Dixon, P.O. Box [illegible]8, Pawlet, VT, 05761.
Ronald G. Dodson, 280 Delaware Avenue, Delmar, NY, 12054.

Sue Drake, 111 W. Thomas St., Apt. 8, Rome, NY, 13440.
Judy A. Driskill, TVA - 227 Nat. Res. Building, Norris, TN, 37828.
Lois Drury, 907 South Foley, Champaign, IL, 61820.
Ann Dudas, RFD 5, Milton, VT, 05468.
John S. Duncan, P.O. Box 3, Jefferson City, MO, 65102.
Bari S. Dworken, RD 2, Box 165A, Bethel, CT, 06801
Brent Dysart, 457 Stillmeadow Circle, Waterloo, Ontario, Canada, N2L5M1.

E. Mrs. Howard Eilenberg, 196-32 53 Avenue, Flushing, NY, 11365.
Howard Eilenberg, 196-32 53 Avenue, Flushing, NY, 11365.
Sarah Eklo, Box 574, Mobridge, SD, 57601.
Ginger Emanuelson, Box 1162, Weston, CT, 06883.
Clifford E. Emanuelson, Box 1162, Weston, CT, 06883.
David Engleson, 125 S. Webster St., Madison, WI, 53702.
Margaret C. Erdman, c/o Fischers, 27 Bailey Ave., Montpelier, VT, 05602.
Diane Evans, 1132 Delaware Avenue, Buffalo, NY, 14209.

F. Lynn Fergerson, 215 South Main Street, North Syracuse, NY, 13212.
Howard Fischer, 200 Nevada Avenue, Staten Island, NY, 10306.
Richard B. Fischer, Stone Hall, Cornell Univ., Ithaca, NY, 14853.
Steven D. Fish, 165 Capitol Ave., Rm. 108, Hartford, CT, 06106.
Nancy I. Fitzpatrick, 1346 Connecticut Ave., NW, Washington, DC, 20036.
Lyn Fleming, 1905 Chalcis Avenue, Unit E, LaFayette, CO, 80026.
Mike Flitter, 1382 Highland Village Drive, Duluth, MN, 55811.
Rose Anne Fogarty, 1400 Washington Ave., Albany, NY, 12222.
Warren Foster, P.O. Box 347, Wilder, VT, 05088.
Dr. H. Seymour Fowler, Pennsylvania State University, University Park, PA, 16802.
Robert D. Fox, ASC/1735 New York Ave., NW, Washington, DC, 20006.
Ken Frazier, 518 6th Avenue, Boone, IA, 50036.
Dr. Mike Freed, Parks & Rec. Geo. Mason Univ., Fairfax, VA, 22030.
Mac Freeman, Queen's University, Kingston, Ontario, K7L 3N6.
Beulah A. Frey, 3873 Coldwater Drive, Allison Park, PA, 15101.
Connie Fuess, 111 W. Thomas St. #8, Rome, NY, 13440.

G. Richard Gallacher, 1111 19 St., NW, Washington, DC, 20036.
W. L. Garvin, Div. Archt., Texas Tech, Box 4140, Lubbock, TX, 79409.
Evelyn Gilbert, 24 Knickerbocker Avenue, Dover, NJ, 07801.
Art Gingert, Miles Sanc., RR1, Box 295, Sharon, CT, 06069.
William H. Glaze, Univ. of Texas, Box 688, Richardson, TX, 75080.
Uta Gore, Wave Hill, 675 252nd St., Bronx, NY, 10471.
John J. Grant, 56 Hartley Street, Portland, ME, 04103.
John Green, Bio. Dept., St. Lawrence Univ., Canton, NY, 13617.
Jack Greene, NWF - 1412 16th St., NW, Washington, DC, 20036.
H. David Greene, 21 South Grove Street, East Aurora, NY, 14052.
Shirley L. Griffin, 18 South Street, Shirley, MA, 01464.
Melon Grover, Box 15, West Stockholm, NY, 13696.
John A. Gustafson, RD 1, Box 195, Homer, NY, 13077.

H. Frank S. Haines, 190 S. King St., Suite 300, Honolulu, HI, 96813.
Edward C. Hall, Jr., Wayland High School, Old Conn. Path, Wayland, MA, 01778.
Jeff M. Hall, RT. 2, Box 48, Fair Grove, MO, 65648.
Mary E. Hallesy, 1246 Emerson Street, Palo Alto, CA, 94301.
Anne Hallowell, Educ. Stone Hall, Cornell Univ., Ithaca, NY, 14853.

Mary Hamilton, 12809 Hamilton Lane, Greenfield, OH, 45123.
William F. Hammond, 2055 Central Avenue, Fort Myers, FL, 33904.
R. Bruce Harde, RD 4, Box 257, Sussex, NJ, 07461.
Joyce Harmon, RT 2, Box 54A, Pratt, KS, 67124.
Josephine Harris, P.O. Box 81, Middlefield, OH, 44062.
Donald K. Heard, 2901 N. Ten Mile Drive, Jefferson City, MO, 65101.
John Hecklau, S/W Wld. Mgt. Area Box 1238, Burlington, CT, 06013.
Joan C. Heidelberg, 5995 Horseshoe Bend Road, Troy, OH, 45373.
Eunice Hendrix, 1139 Vesper, Ann Arbor, NI, 48103.
Martin Hetherington, 1949 Riveria Drive, East Lansing, MI, 48823.
Dr. John G. Hewston, Col. of Nat. Res., Humboldt State Univ., Arcata, CA, 95521.
Russell J. Heyde, 975 Indian Landing Road, Millersville, MD, 21108.
Clyde W. Hibbs, 1704 North Riley Road, Muncie, IN, 47306.
Matthew M. Hickey, 20 Alberts Court, Richboro, PA, 18954.
Donald P. Hipes, RT 2, Box 92, Jerico, VT, 05465.
Lynn Hodges, TVA 229 Natural Res. Bldg., Norris, TN, 37828.
Joyce Holmes, 416 West Grove Street, Clarks Summit, PA, 18411.
Margaret R. Hood, 1317 Rhode Island Avenue, Washington, DC, 20005.
Thomas F. Horn, 39 South Main St. Atlantic Ctr., Ipswich, MA, 01938.
May Hostetter, 11667 Charter Oak Ct., Apt. 201, Reston, VA, 22090.
Robert Hostetter, 11667 Charter Oak Ct., Apt. 201, Reston, VA, 22090.
Beth Ann Howard, 645 East Yale Place, Englewood, CA, 80110.
Constance A. L. Howe, 5 Lincoln St., Springfield, VT, 05156.
Thomas R. Hudspeth, 153 South Prospect, Burlington, VT, 05401.
Joan M. Hughes, 345 Pine Oak Lane, Westbury, NY, 11590.
Harold R. Hungerford, Dept. of C.I.M., SIU, Carbondale, IL, 62901.
Jorie Hunken, 180 Hemenway Road, Framingham, MA, 01701.

J. Bruce Jacobson, RR Box 247, Freeport, ME, 04032.
Delmar Janke, 1221 Berkeley Drive, College Station, TX, 77840.
Wendell E. Jeffery, 1039 East Manchester, Springfield, MO, 65807.
Mrs. Eric S. Johnson, 805 North School Street, Normal, IL, 61761.
Dr. Eric S. Johnson, 805 North School Street, Normal, IL, 61761.
Emory Jones, 540 Capitol Trail, Newark, DE, 19711.
Lucy E. Jones, 540 Capitol Trail, Newark, DE, 19711.
John M. Judy, TVA - 228 Nat. Res. Building, Norris, TN, 37828.
Candace L. Julyan, 96 Powderhouse Blvd., Somerville, MA, 02144.

K. Tim Kautza, SCS - 7515 NE Ankeny Road, Ankeny, IA, 50021.
Tatsuo Kawasaki, 288 Takano, Mugegawa-Cho, Mugi-Gun, Gifu-Ken, Japan.
Steve Keane, Chewonki Foundation, Wiscasset, ME, 04573.
Kathleen Keith
Carol Ann Kelly, Apt. 51-20 Hunter's Glen Road, Plainsboro, NJ, 08536.
Mrs. Duane B. Kelly, 10311 East 42nd Street, Kansas City, MO, 64116.
Duane B. Kelly, 10311 East 42nd St., Kansas City, MO, 64133.
Carolyn L. Kennedy, G.S.A., 830 Third Ave., New York, NY, 10022.
David Kennedy, Dept. of Educ., Old Capitol Bldg., Olympia, WA, 98504.
Catherine Kiorpes, College of the Atlantic, Bar Harbor, ME, 04609.
Dr. John Kirk, NJ School of Cons., Box 272, Branchville, NJ, 07826.
Daisy Klinedinst, RD 1, Honey Grove, PA, 17035.
Donald Klinedinst, RD 1, Honey Grove, PA, 17035.
Cliff Knapp, 306 South Thifd Street, Oregon, IL, 61061.
Kevin Kopp, Box 9, Washington Crossing, PA, 18977.
Cherie Koss, Buckeye Trails GSC, 184 Salem Ave., Dayton, OH, 45406.
Herman C. Kranzer, Univ. Western Florida, Pensacola, FL, 32504.

L. Doris W. Laber, SCS - Federal Bldg., Box G, Durham, NH, 03824.
James Lammers, 104 W. Franklin Ave., Minneapolis, MN, 55404.
Isabell T. Laucka, 1515 Wilson Blvd., Arlington, VA, 22209.
C. James Lawler, 10 North Main Street, West Hartford, CT, 06107.
William A. Leber, P.O. Box 122, Birchrunville, PA, 19421.
Gordon Leckie, 7416-F Tallow Wind Trail, Fort Worth, TX, 76133.
Paula Leon, 25 Plympton Road, Sudbury, MA, 01776.
Richard Leonard, 3890 Carman Road, Schenectady, NY, 12303.
Donald R. Lesh, 1525 New Hampshire Ave., NW, Washington, DC, 20036.
Thomas W. Levermann, SCS - P.O. Box 2890, Washington, DC, 20013.
Shirley M. Lewis, 13102 Largo Drive, Savannah, GA, 31419.
Donna Lifur, TVA - 225 Nat. Res. Building, Norris, TN, 37828.
Jennifer Lingelbach, Vt. Inst. Nat. Science, Woodstock, VT, 05091.
Louise Linn, 8 Stuyvesant Oval, New York, NY, 10009.
Dede Long-Messa, 1212 Edgehill Road, Abington, PA, 19001.
Fran Ludwig, 19 Wyman Road, Lexington, MA, 02173.
Andrea Lukens, 130 Powderhouse Blvd., Somerville, MA, 02144.
Ralph H. Lutts, Blue Hills IC, 1904 Canton Ave., Milton, MA, 02186.
John E. Lutz, Pine Lake EE Center, Oneonta, NY, 13820.

M. Jean MacGregor, 3138 Overhulse Road, NW #44, Olympia, WA, 98502.
Louise Maglione, 8 Glen Ora Drive, Bedford, MA, 01730.
E. Arnold Mahey, 351 North 73rd Street, Harrisburg, PA, 17111.
Vanessa Malcarne, P.O. Box 362, East Haddam, CT, 06423.
Michael H. Mansour, 21 Wenonah, Pontiac, MI, 48053.
Thomas Marcinkowski, Ecology House, Cornell Univ., Ithaca, NY, 14853.
James I. Marion, Frost Valley EE Center, Oliverea, NY, 12462.
Thomas Mason, Box 2969, Wintergreen Avenue, New Haven, CT, 06515.
Anna Matheny, 90-39 212 Place, Queens Village, NY, 11428.
Robert M. McClung, 91 Sunset Avenue, Amherst, MA, 01002.
Kathryn C. McCoy, TN EE NWK, Jackson State CC, Jackson, TN, 38301.
Edward J. McCrea, 10718 Ashby Place, Fairfax, VA, 22030.
Lauren McGuinn, Magnolia Tree EC, 677 Lafayette Ave., Brooklyn, NY, 11216.
June McSwain, 1619 Massachusetts Ave., NW, Washington, DC, 20036.
Elsie McVicker, 335 Glen Park Drive, Bay Village, OH, 44140.
Ed McWilliams, 1201 Essex Street, Bangor, ME, 04401.
Augusto Medina, 3035 Belvidere, Ann Arbor, MI, 48104.
Lenore Miller, 296 Arlene Street, Staten Island, NY, 10314.
John Miller, Route 3, Box 172-C, Buffalo, MN, 55313.
Deb Miller, Route 3, Box 172-C, Buffalo, MN, 55313.
Ty G. Minton, RFD 1, Box 219, Westmoreland, NH, 03467.
Anthony S. Mitchell, Housatonic Val. Assoc., Box 515, Kent, CT, 06757.
Robert Moeller, RR 1, Box 171, Sharon, CT, 06069.
Conley L. Moffett, 4900 Kingston Drive, Annandale, VA, 22003.
Martha Monroe, 738½ Griswold, Jackson, MI, 49203.
Lawrence B. Morris, 39 S. Main St., Ipswich, MA, 01938.
Martha Munzer, 647 Ridgeway, White Plains, NY, 10605.
Martha Munzk, 2728 NE 32nd Street, Fort Lauderdale, FL, 33306.
Georgia Murphy-Smallman, 130 North Street, Apt. 1, Newtonville, MA, 02160.
Peter Myers, SCS - P.O. Box 2890, Washington, DC, 20013.

N. Tina Nadeau, Nat. Audubon Soc., 950 3rd Ave., New York, NY, 10022.
Leonard Nelson, 10290 North Huron Street, Denver, CO, 80221.
William Nieter, 32-57 83rd Street, Jackson Heights, NY, 11370.
Basil Northam, Charley Fish Road, Chestertown, NY, 12817.

Donna Nye, GSA, 830 3rd Ave., New York, NY, 10022.

O. Lynn Ocone, 180 Flynn Avenue, Burlington, VT, 05401.
Edward C. Olson, 5730 Roche Drive, Apt. E, Columbus, OH, 43229.
Tom Oppewal, 2104 California Avenue, Savannah, GA, 31401.
Linda Oxendine, TVA - 224 Nat. Res. Bldg., Norris, TN, 37828.

P. Carol Padalino, Box 239, Dingmans Ferry, PA, 18328.
John J. Padalino, Pocono EE Center, Dingmans Ferry, PA, 18328.
Deborah L. Page, General Delivery, Washington, VA, 22747.
John M. Pager, Jr., 7814 West Sunnyvale Road, Mequon, WI, 53092.
William Palmer, P.O. Box 176, Jefferson City, MO, 65102.
Doris V. Parkman, 841 Tranquil Court, Sunny Hills, FL, 32428.
Marie Patchin, P.O. Box 224, Middlefield, OH, 44062.
Marilyn A. Paul, 253 East 202nd Street, Bronx, NY, 10458.
Jane Paulk, 210 Ailsie Drive, Knoxville, TN, 37920.
John Paulk, Tennessee Valley Authority, Norris, TN, 37828.
E. F. Peffer, 2964 Stonegate Trail, Atlanta, GA, 30340.
Dr. Dixie A. Pemberton, 4309 Woodberry St., University Park, MD, 20782.
Anne Perry, 54 Prospect Street, Sherborn, MA, 01770.
Virginia Peters-Grant, 56 Hartley Street, Portland, ME, 04103.
Mark Peterson, P.O. Box 609, Eagle River, WI, 54521.
Erica Peterson, P.O. Box 609, Eagle River, WI, 54521.
Ray Pfortner, USEPA, 26 Federal Pl. Rm. 402, New York, NY, 10278.
Trudy Phillips, Markley Road, MR #1, Pennsburg, PA, 18073.
Dwain Phillips, SCS/State Office Bldg. Agri. Ctr., Stillwater, OK, 74074.
Phillip D. Pitchford, 1306 Woodhurst Drive, Bowling Green, KY, 42101.
Carol Place, RD 1, Box 442, Vergennes, VT, 05491.
Charles B. Place, Jr., 2558 Date Avenue, Macon, GA, 31204.
Maureen Plourd, Ct. Dep., 165 Capitol Ave., Hartford, CT, 06106.
Jean Porter, Au/Ctr. 613 Riversville Rd., Greenwich, CT, 06830.
Bill Possiel, 8940 Jones Mill Road, Chevy Chase, MD, 20815.
Corky Potter, Shavers Creek EE/Ctr. 267 Rec. Bldg., University Park, PA, 16802.
Mack Prichard, Tenn Cons. Dept., 701 Broadway, Nashville, TN, 37203.
Dr. P. J. Puntenney, 1989 West Liberty, Ann Arbor, MI, 48103.
Walter Purdy, 1111 19th St., NW, Washington, DC, 20036.
Jim Pyland, Route 3, Box 64D, Kearney, MO, 64060.

R. Esther Railton, 1095 West Holly Drive, Walnut Creek, CA, 94598.
Linda Rapp, RR 1, Box 171, Sharon, CT, 06069.
Deborah Reichert, 49 Clinton Avenue, Dobbs Ferry, NY, 10522.
Kathy Remmel, 41 Thomas Street, Portland, ME, 04102.
Jan Rensel, Salina Star Route, Boulder, CO, 80302.
Constance A. Riley, 2683 Mier Road, Route 11, Midland, MI, 48640.
Janet Rimmel, 614 Dorseyville Road, Pittsburgh, PA, 15238.
Fred Rimmel, Aud. Soc W. PA, 614 Dorseyville Rd., Pittsburgh, PA, 15238.
Thomas H. Ripley, TVA - Forestry Blvd., Norris, TN, 37828.
Louis Ritrovato, RD 1, Box 392, Reading, PA, 19607.
Louise Ritsema, 231 Wildwood, Ann Arbor, MI, 48103.
Ian Robottom, 1669 McIntyre Drive, Ann Arbor, MI, 48105.
Verne N. Rockcastle, 18 Stone Hall, Cornell University, Ithaca, NY, 14853.
Mary Rogers, 47 Bartlett Avenue, Arlington, VA, 02174.
Sandra Ross, 6226 SW 10 Street, Miami, FL, 33144.

James M. Rossi, 200 Nevada Avenue, Staten Island, NY, 10306.
Charles E. Roth, Massachusetts Audubon Society, Lincoln, MA, 01773.
Robert E. Roth, 570 Morning Street, Worthington, OH, 43085.
Helen R. Russell, 44 College Drive, Jersey City, NJ, 07305.
Robert Russell, 44 College Drive, Jersey City, NJ, 07305.
Robert P. Rye, CE Center, RR 1, Box 53, Guthrie Center, IA, 50115.

S. Lucie Samson-Turcotte, 5 Jardins Merici, Apt. 606, Quebec City, PQ, G1S 4N7.
Alan R. Sandler, 1738 New York Avenue, NW, Washington, DC, 20006.
Kathleen Savesky, P.O. Box 362, East Haddam, CT, 06423.
Phillip P. Schaeffer, 613 Riversville Road, Greenwich, CT, 06830.
Rudy Schafer, CA/DPE 721 Capitol Mall, Sacramento, CA, 95814.
Irene Scheid, 85-29 96th Street, Woodhaven, NY, 11421.
Alice Schmotzer, 4201 Oak Park, Cleveland, OH, 44109.
Alice Schneider, 40 Kenneth Road, Hartsdale, NY, 10530.
Dr. Judith Schultz, 9555 Plainfield Rd., Cincinnati, OH, 45236.
Dr. Janet R. Schwengber, SUNY-Agri. & Tech. Col., Delhi, NY, 13753.
Fifi Scoufopoulos, P.O. Box 112, Extension Center, Brooklyn, CT, 06234.
Dan Sebert, 157 Melrose, Stillwater, OK, 74074.
Alan D. Sexton, 557 Maple Avenue, Doylestown, PA, 18901.
Jean S. Sharp, Box 288, RR2, East Hill Road, Califon, NJ, 07830.
Don Shedd, Rt. 2, Box 61 A 1, Monroe, GA, 30655.
Edith Shedd, Rt. 2, Box 61 A 1, Monroe, GA, 30655.
Elizabeth Sheehan, 231 Horseneck Road, South Dartmouth, MA, 02748.
Marie E. Shepard, 10465 Calkins Road, Swartz Creek, MI, 48473.
Douglas Sherry, 14 Pearl Street, Montpelier, VT, 05602.
John Shiel, McKenry CD, 6512 Harts Road, Ringwood, IL, 60072.
Archibald P. Sia, Pulliam 323, CIM Department, Carbondale, IL, 62901.
William Sigle, 192 Fern Road, East Brunswick, NJ, 08816.
Marcelle S. Silman, 400 Second Avenue, New York, NY, 10010.
Barbara Silver, 34-25 150 Place, Flushing, NY, 11354.
Bora Simmons, P.O. Box 8235, Ann Arbor, MI, 48107.
Suzanne Simon, Riveredge NC 4438 Hawthorne, Newburg, WI, 53060.
Edith A. Sisson, 352 Sudbury Road, Concord, MA, 01741.
Eneas Sloman, 6463 229 Street, Bayside, NY, 11364.
Ralph Sloman, 6463 229 Street, Bayside, NY, 11364.
Nancy Slowik, 240 Sharrotts Road, Staten Island, NY, 10309.
Georgia W. Smallman, 130 North St., Apt. 1, Newtonville, MA, 02160.
Christine Smith, 168 Milltown Road, East Brunswick, NJ, 08816.
Sue Spahr, 66 Mountainview Avenue, Nutley, NJ, 07110.
Paul C. Spector, 9500 Sperry Road, Mentor, OH, 44060.
Talbert Spence, Wave Hill, 675 West 252nd St., Bronx, NY, 10471.
Gloria Stapp, 2050 Delaware, Ann Arbor, MI, 48103.
William B. Stapp, 2050 Delaware, Ann Arbor, MI, 48103.
Vicki D. Stayton, 316 Cedar, Apt. 5, Champaign, IL, 61820.
George Steele, 45 Second Street, South Glens Falls, NY, 12801.
Alice Steinbach, 70 Cedar Lake, Chelsea, MI, 48118.
Ray Steinbach, 70 Cedar Lake, Chelsea, MI, 48118.
Mrs. Frederick R. Steinhauser, 2243 Scudder Street, St. Paul, MN, 55108.
Frederick R. Steinhauser, 2243 Scudder Street, St. Paul, MN, 55108.
Zoe Ann Stinchcomb, P.O. Box 231, Stillwater, ME, 04489.
Sarah Stokes, 1904 Canton Avenue, Milton, MA, 02186.
David W. Stokes, 1904 Canton Avenue, Milton, MA, 02186.
Harry Stopp, 214 Mossman Building, UNC-G, Greensboro, NC, 27412.
Eileen Sullivan, 265 Beaver Street, Waltham, MA, 02154.
Donna Szuhy, Ohio DNR, Fountain Square, Columbus, OH 43224.

T. David B. Taylor, 712 Beechwood Drive, Kingsport, TN, 37663.
Debbie Taylor, 712 Beechwood Drive, Kingsport, TN, 37663.
Mitchell Thomashow, Antioch/NE Grad School, Keene, NH, 03431.
Jean L. Thompson, 214 Basket Road, Webster, NY, 14580.
John F. Thompson, CTR/HI ED Memphis State Univ., Memphis, TN, 38152.
John T. Thompson, 6 Dunham Road, Park Forest, IL, 60466.
Ruth Tilbury, 6613 Durand Avenue, Racine, WI, 53406.
Danny Tishman, RFD 1, Box 149B, Lubec, ME, 04652.
Audrey N. Tomera, Dept. of C.I.M., SIU, Carbondale, IL, 62901.
Eve Tomeski, 18535 Harwood Ave., Apt. 1A, Homewood, IL, 60430.
Duane Toomsen, Iowa DPI, Grimes Bldg., Des Moines, IA, 50319.
Mary Sue Topper, Dep. CN 402, 25 Arctic Pkwy., Trenton, NJ, 08625.
Richard Touvell, McKeever Env. Center, RD 3, Sandy Lake, PA, 16145.
Frank Trocco, RFD 1, Box 149B, Lubec, ME, 04652.
Trudy Trocco, RFD 1, Box 149B, Lubec, ME, 04652.
Judy Tumosa, RFD 1, Box 443 #3, Dover, NH, 03820.
Lucie S. Turcotte, 5 Jardins Merici, #606, Quebec City, PQ, Canada G1S 4N7.
Patrice Turcotte, 5 Jardins Merici, App. 606, Quebec City, PQ, G1S 4N7.
Carolyn J. Tzitz, 296 Garden Hill Dr., Los Gatos, CA, 95030.

V. Anne Vallery, 758 South Marshall Street. Philadelphia, PA, 19147.
Leslie H. Van Cott, ME Audubon 188 US Rt. 1, Falmouth, ME, 04105.
Sarah Van Vleck, 405 E. 63rd St., Apt. 3A, New York, NY, 10021.
Elaine Vogl, P.O. Box 41, Solebury, PA, 18963.
Sonia Vogl, R#1, Oregon, IL, 61061.
Robert Vogl, R#1, Oregon, IL, 61061.
Trudi L. Volk, Dept. of Curr/Media, SIU, Carbondale, IL, 62901.

W. Susan Warner, 717 Boalsburg Pike, Boalsburg, PA, 16827.
Robert Warpinski, 1927 Main Street, Green Bay, WI, 54301.
Howard Weaver, 6114 Mariemont Circle, Grand Blanc, MI, 48439.
Mary Weeks, Land Between the Lakes, Golden Pond, NY, 42231.
Michael G. Weilbacker, 8480 Hagy's Mill Road, Philadelphia, PA, 19128.
Laura Wells, 304 East Park Drive, Raleigh, NC, 27605.
Maxwell Wheat, Jr., 333 Bedell Street, Freeport, NY, 11520.
Philip White, 24 Cornfield Lane, Commack, NY, 11725.
Joan Whittier, Perkins Road, RFD 2, Durham, NH, 03824.
Doris Wiencke, 1170 Woods Road, Southampton, PA, 18966.
Gus Wiencke, 1170 Woods Road, Southampton, PA, 18966.
John Wiessinger, P.O. Box 453, Etna, NY, 13062.
Dora P. Wiley, P.O. Box 883, Moncks Corner, SC, 29461.
W. H. Wiley, P.O. Box 883, Moncks Corner, SC, 29461.
Dr. Richard Wilke, RT 1, Amherst Junction, WI, 54407.
Ben Williams, c/o Cohen, RFD 1, Box 149B, Lubec, ME, 04652.
Kathy Williams, P.O. Box 1373, Homestead, FL, 33090.
Jim Winkler, 340 Coffey Hall, U of MN, St. Paul, MN, 55108.
Nancy H. Withington, P.O. Box 800, Hanover, NH, 03755.
Nancy A. Wolf, EAC, 417 Lafayette Street, New York, NY, 10003.
Howard Wolff, 1813 Fifth Avenue, Troy, NY, 12180.
Nancy Wottrich, RD 1, Box 263, New Hope, PA, 18938.
Ann Wright, 122 Latham Avenue, Hopkinsville, KY, 42240.

Y. Charles H. Yaple, Rec. Ed., SUNY Cortland, Box 2000, Cortland, NY, 13045.
Dennis Yockers, 3755 Token Road, Deforest, WI, 53532.
Marcia Yockers, 3755 Token Road, Deforest, WI, 53532.

John Yolton, UAW, 8000 East Jefferson, Detroit, MI, 48214.
Dr. Jo Anne Young, 8201 East Harry #1303, Wichita, KS, 67207.

Z. Michael Zamm, 51 Chambers St., Rm. 228, New York, NY, 10007.
Ellen Zeph, 1000 Aullwood Road, Dayton, OH, 45414.
Paul Zeph, 1000 Aullwood Road, Dayton, OH, 45414.

Appendix C: Coalition for Addressing the First EE Congress

In response to the mandate approved by the Congress[*] to establish an action committee to carry forward the Recommendations of the Congress, Coordinator John J. Padalino has brought together a Coalition for Addressing the First EE Congress. The aims, membership, and operating mode of the Coalition are outlined below, with a roster of the representatives making up the Coalition. The Coalition held its first meeting on December 12, 1983, in Washington, D.C.

Aims

The purpose of the Coalition is to enhance the role of member organizations in bettering precollege education in, for, and about environment throughout the United States. In light of the complexity of schooling and education in America, the central focus of the Coalition is on how member organizations can best act in concert. More specifically, the aims of the Coalition are to:

1. Help upgrade the status and competence of teachers.
2. Help improve the environmental experiences of students.
3. Help increase citizen literacy in the environment.
4. Help inform the political system as it formulates policies that affect environment, schooling, and education in America.

Name: Coalition for Addressing the First EE Congress

The name is intentionally succinct and is meant to include the various EE Congress member organizations.

Membership

Membership in the Coalition shall be open to affiliated organizations of the Alliance for Environmental Education, EE Congress co-sponsors, and comparable organizations which share the aims of the Coalition. Representatives of member organizations (education officers or their equivalents) will be listed in the Directory of the Coalition.

---

[*] See Resolution 15, p. 103.

Operation

The Coalition is conceived as an informal partnership working together on specific collective goals. As a means of achieving these goals, the Coalition's efforts will consist of:

- Projects -- joint efforts having specific foci with identifiable tasks and volunteer/commissioned agents

- Events -- seminars, symposia, conferences, congresses which advance the aims of the Coalition

- Communications -- internal exchange of necessary information and external distribution of important information

Meetings/Steering Group/Secretariat

There will be general meetings of representatives of the member organizations in the Coalition.

A steering group, whose membership will change periodically, will determine the agenda for the general meetings of the Coalition and will provide guidance and direction between general meetings. Specific committees and sub-committees will meet only as necessary to facilitate operation of the Coalition.

The Alliance for Environmental Education is willing to serve as the secretariat for the first Coalition.

First EE Congress Coalition Committee

Co-Chairman: John J. Padalino, Congress Coordinator; RD #1, Box 268, Dingmans Ferry, PA 18328; (717)828-2319

Co-Chairman: John R. Paulk, Congress Program Chairman; Tennessee Valley Authority, Forestry Building, Norris, TN 37828; (615)632-3338

American Nature Study Society: John J. Kirk, President; New Jersey School of Conservation, Branchville, NJ 07827; (201)948-4646

Conservation Education Association: John G. Hewston, President; Humboldt State University, School of Natural Resources, Arcata, CA 95521; (916)826-3561

American Forest Institute: June McSwain, 1619 Massachusetts Avenue NW, Washington, D.C. 20036; (202)797-4530

American Society for Environmental Education: Diana Carroll, P.O. Box R, Durham, NH 03824; (603)868-5700

Atlantic Center for the Environment: Kathleen Blanchard, QLF Headquarters, 39 South Main Street, Ipswich, MA 01938; (617)356-0038

The Council on Outdoor Education: Elaine Fox, 1900 Association Drive,
Reston, VA 22091; (703)476-3400

Edison Electric Institute: Walter Purdy, 1111 19th Street, Washington,
D.C. 20036; (202)828-7400

Environmental Education Advisory Council: Nancy Wolf, 417 Lafayette Street,
New York, NY 10003; (212)677-1601

Human Habitat Study: William Hammond, 2055 Central Avenue, Fort Myers, FL
33905; (813)334-4363

Kentucky Association for Environmental Education: David Wick, 4409
Preston Highway, Louisville, KY 40213; (502)267-8919

National Association for Environmental Education: Judith Schultz, 9555
Plainfield Road, Cincinnati, OH 45236; (513)745-4228

National Association of Conservation Districts: Malcolm P. Crooks,
P.O. Box 297, Solebury, PA 18936; (215)297-5676

National Council for Geographic Education: Dixie Ann Pemberton, 4309
Woodbury Street, University Park, MD 20782; (301)228-8200

National Science Teachers Association: John J. Padalino, RD #1, Box 268,
Dingmans Ferry, PA 18328; (717)828-2319

New England Environmental Education Alliance: Ralph Lutts, Blue Hills
Interpretive Centers, 1904 Canton Avenue, Milton, MA 02186; (617)333-0690

New York State Outdoor Education Association: Norman Skliar, Valentine
Road and The Plain Road, Westbury, NY 11590; (516)997-8700

Pennsylvania Alliance for Environmental Education: E. Arnold Mahey,
351 N. 73rd Street, Harrisburg, PA 17111; (717)564-1636

Soil Conservation Society of America: Thomas Levermann, U.S. Soil
Conservation Service, P.O. Box 2890, Washington, D.C. 20013; (202)447-4543

State Environmental Education Coordinators Association: Teresa Myer
Auldridge, Box 6Q, Richmond, VA 23216; (804)225-2651

Tennessee Environmental Education Association: Ronald Cleminson, Memphis
State University, Memphis, TN 38152; (901)454-2365

Vermont State-Wide Environmental Education Project: Thoams Hudspeth,
University of Vermont, 153 South Prospect Street, Burlington, VT
05405; (802)656-4055

REPORTS OF PREVIOUS CONFERENCES

Robert S. Cook and George T. O'Hearn, editors, *Processes for a Quality Environment: A Report of the National Conference on Environmental Education* (December 1970). University of Wisconsin-Green Bay, 1971.

National Conference on Environmental Studies Programs in Higher Education, *Environmental Responsibility in Higher Education: Processes and Practice* (November 30-December 2, 1972). University of Wisconsin-Green Bay, 1973.

William B. Stapp, editor, *Emerging Issues in Environmental Education* (June 3-6, 1974). The University of Michigan, School of Natural Resources, Ann Arbor, 1974. ED 158 974

Rudolph J. H. Schafer and John F. Disinger, editors, *Environmental Education Perspectives and Prospectives* (July 6-12, 1975). Volume I: *Key Findings and Major Recommendations*; Volume II: *Supporting Documentation*. The Ohio State University, ERIC/SMEAC, 1975. ED 121 595 (Volume I) ED 121 612 (Volume II)

Trends in Environmental Education, the Working Papers of the Belgrade International Workshop on Environmental Education (October 13-22, 1975). United Nations Educational, Scientific and Cultural Organization, UNIPUB, Box 433, Murray Hill Station, New York, NY 10016, 1976.

James L. Aldrich, Anne M. Blackburn, and George A. Abel, *A Report on the North American Regional Seminar on Environmental Education* (October 5-8, 1976). The Ohio State University, SMEAC Information Reference Center, 1977. ED 143 505

Toward an Action Plan: A Report on the Tbilisi Conference on Environmental Education (October 14-26, 1977). Federal Interagency Committee on Education, Subcommittee on Environmental Education, Department of Health, Education and Welfare, 1978, G. P. O. 017-080-01838-1. ED 155 063

William B. Stapp, editor, *From Ought to Action in Environmental Education: A Report of the National Leadership Conference on Environmental Education* (March 28-30, 1978). The Ohio State University, SMEAC Information Reference Center, 1978. ED 159 046